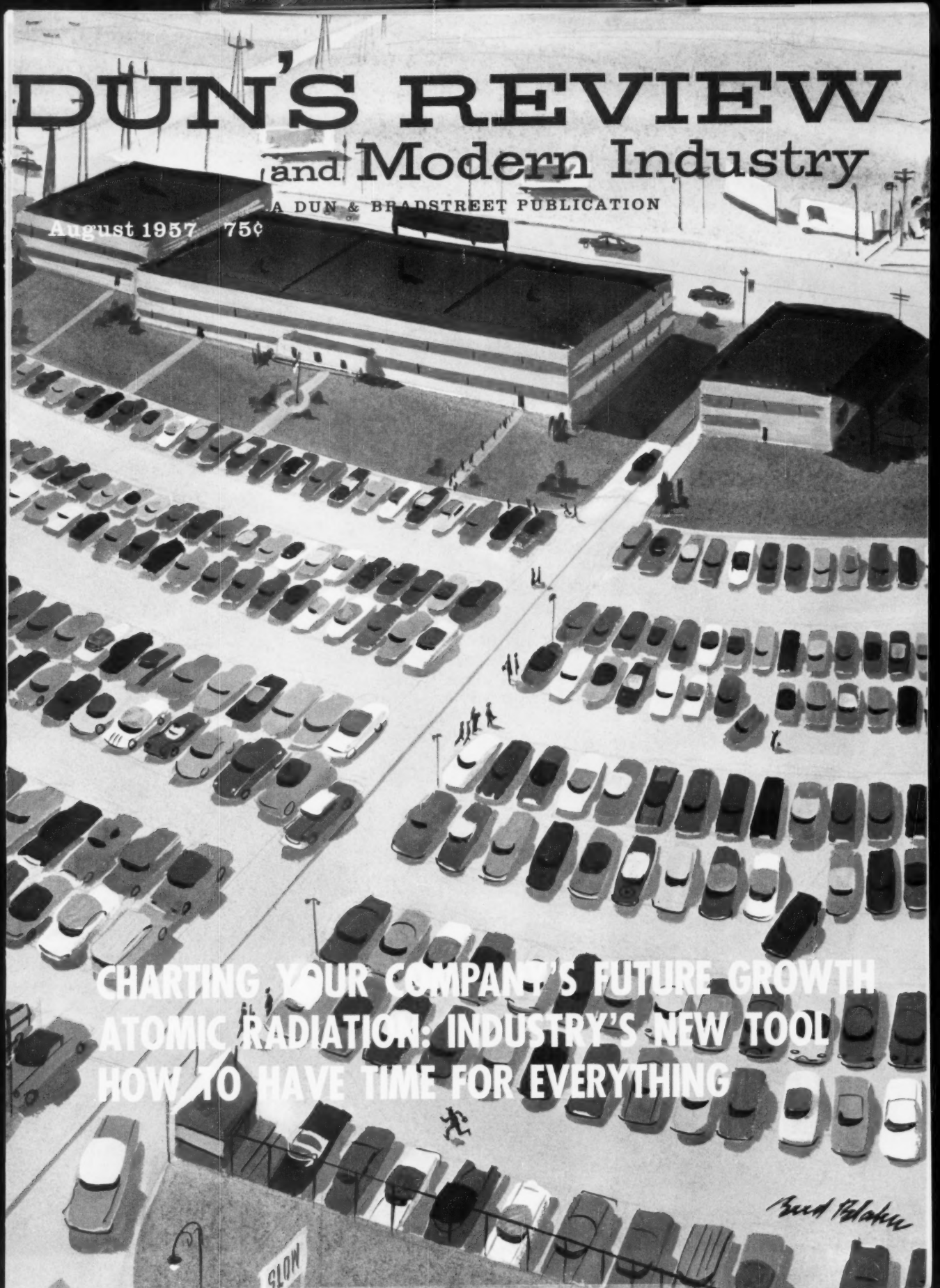
DUN'S REVIEW and Modern Industry

A DUN & BRADSTREET PUBLICATION

August 1957 75¢



CHARTING YOUR COMPANY'S FUTURE GROWTH

ATOMIC RADIATION: INDUSTRY'S NEW TOOL

HOW TO HAVE TIME FOR EVERYTHING

hydrofluoric acid

In sciences as new as aerosols and rocket propulsion... in crafts as old as the manufacture of glass... hydrofluoric acid is rendering important services to industry.

As need for this unique chemical increases, Stauffer capacity to meet the need keeps pace.

Anhydrous hydrofluoric acid is available from Stauffer's Nyotex Chemical Division, Houston, Texas, in tank cars of 22-ton and 42-ton capacity; aqueous acid in tank cars and drums from Stauffer's Louisville plant.

If you need Hydrofluoric Acid in quantity... Stauffer is a MAJOR source of supply

STAUFFER CHEMICAL COMPANY

380 Madison Avenue, New York 17, N. Y.
Prudential Plaza, Chicago 1, Ill.
636 California Street, San Francisco 8, Calif.

Since 1885 Stauffer Chemical Company has provided American Industry and Agriculture with a growing stream of chemicals... to keep pace with the requirements of expanding basic industries such as steel, petroleum, rubber, glass and paper... to meet the needs of new industries such as synthetic fibers and plastics... and to satisfy the demands of scientific farming for new and effective agricultural chemicals.

Stauffer
CHEMICALS
SINCE 1885

Editor
A. M. SULLIVAN

Executive Editor
M. JOSEPH DOOHER

Associate Editor
ROLAND MANN

Senior Editors
ANNESTA R. GARDNER.....*Industrial Editor*
KENNETH HENRY.....*Executive Methods Editor*
THOMAS KENNY.....*Marketing Editor*
ALFRED G. LARKE...*Employer Relations Editor*
MELVIN MANDELL..*General Management Editor*
ALEX. O. STANLEY.*International Markets Editor*

Managing Editor
ROY PAKANSKY

Art Director
CLARENCE SWITZER

Contributing Editors
EDWIN B. GEORGE RALPH J. WATKINS

Editorial Associates
JOHN W. RIDAY ROWENA WYANT

Production Assistant
JOSEPH M. PALMER

Business Manager
VIOLA V. ANDERSON

Advertising Manager
ALEX J. DUGHI

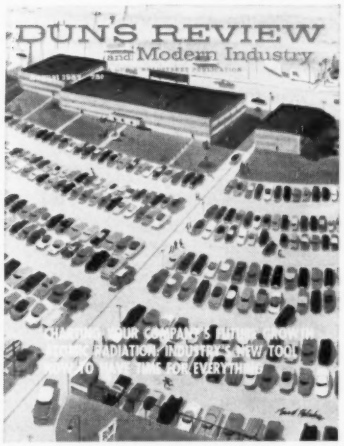
Circulation Director
WALTER F. GRUENINGER

Publishing Adviser
NORMAN C. FIRTH

VOLUME 70, NO. 2 AUGUST 1957

DUN'S REVIEW and Modern Industry

THE COVER



This month's cover painting, the work of Bud Blake, might be titled "Pattern of Prosperity." It's a distinctly American pattern, and there's a moral in it. Nowhere else in the world has industrial productivity reached the heights that it has in the United States—and nowhere else does the average factory employee ride to work in his own late-model car.

ARTICLES

Charting Your Company's Future Growth 41
William E. Hill and Charles H. Granger

Danger! Grapevine at Work 44
Robert Newcomb and Marg Sammons

Radiation Processing—New Tool for Industry 47
Annesta R. Gardner

How to Have Time for Everything 53
Auren Uris

Alexander Hamilton: Shaper of the American Business System 55
Louis M. Hacker

Foreign Currencies: Gordian Knot of World Trade 89
Franz Pick and Alexander O. Stanley

Sales Soar with Executive Suite on Wings 99

Stockholder Meeting—Across 1,000 Miles 113

DEPARTMENTS

The Reviewing Stand 2
Heard in Washington 5
Voice of Industry 11
Business Men's Expectations 19
The Trend of Business and Compass Points of Business 21
Business Failures 33
Highlights and Sidelights 35
Sales and Distribution 63
Executive Bookshelf 69
New Methods and Materials 73
International Markets 89
Employer Relations 115
Editorial 120

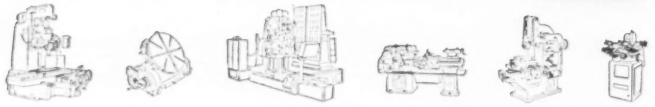
DUN'S REVIEW AND MODERN INDUSTRY, August 1957, Vol. 70, No. 2. Published monthly by Dun & Bradstreet Publications Corp., J. Wilson Newman, President. Publication Office: 300 West Adams St., Chicago, Ill. Editorial, Advertising, and Subscription Offices: 99 Church St., New York 8, N. Y., Entered as second class matter at the Post Office, Chicago, Ill.

Address all correspondence to the New York office. Subscription: $5 a year in USA and Possessions, and Canada. Elsewhere, $10. Single copy, 75 cents. Please state title and employing company when subscribing.
Copyright © 1957 by Dun & Bradstreet Publications Corporation. Copyrighted under International Copyright Convention. All rights reserved under Pan American Copyright Convention. The title DUN'S REVIEW AND MODERN INDUSTRY is registered in the U.S. Patent Office. This magazine is indexed in the Industrial Arts Index, in the Public Affairs Information Service, and also by volumes in an index available upon request to the Editorial Office . . . Member ABC, SBME, and MPA . . . Printed in USA.

Numerical Control

A NEW APPROACH TO PRECISION IN PRODUCTION MANUFACTURING – "Numerical Control" is an automatic, ultra-precision means of translating blueprint data into machine positions and, other functions. Successfully applied to Pratt & Whitney high precision Jig Borers, Hole Grinders and Rotary Tables which are usually restricted to toolroom use, Numerical Control makes the superior accuracy of this equipment available for efficient long run or short run production work where extreme precision is essential. It provides automatic operation *without* complex, expensive tooling or investment in special "one-job" machines. Scrap losses due to human error are practically eliminated since the machine can be placed under the control of a tape program.

Write for more information.
Pratt & Whitney Company, Incorporated,
42 Charter Oak Blvd., West Hartford, Conn.



JIG BORERS • ROTARY TABLES • KELLER MACHINES • TOOLROOM LATHES • VERTICAL SHAPERS • CUTTER AND RADIUS GRINDERS

PRATT & WHITNEY
FIRST CHOICE FOR ACCURACY
MACHINE TOOLS • GAGES • CUTTING TOOLS

the REVIEWING STAND

• A scrap heap isn't beautiful, but it's often eloquent. It tells the story of a high level of industrial activity —of the replacement of worn-out automobiles, old plumbing, metal roofing, railroad and electrical equipment by something newer and better, or at least by something different.

The scrap heap is a temporary if ugly monument to progress. Soon it returns to the fiery maw of the furnace, to be made into new metal, new things with new uses in homes, offices, factories, markets, and transport.

There's nothing like a scrap heap to illustrate the wear and tear of life in our times or to bring out the dynamics of growth. The price of scrap is always a lively barometer of industrial demand: the happy junkman is a symbol of prosperity. And the scrap sellers should be happy today. The Business Conditions Staff of DUN'S REVIEW AND MODERN INDUSTRY reports that steel scrap has been rising since May. There has been an occasional dip, it is true, but the trend is up, despite earlier expectations of a slump.

• Top management is getting increasingly politically minded, if not politically active. That was soon apparent from the first rush of responses to the second Presidents' Panel survey, due to be published in the September DUN'S REVIEW AND MODERN INDUSTRY. Business men not only are interested in getting orders from Uncle Sam, but seem quite concerned about the management capacity of the men at the controls of government.

The "typical" business man is a myth; and so is the typical officeholder, the typical legislator, and the typical educator. Business men just won't fit the standard mold, and neither will the others. Life is competitive even among the dedicated individuals in Government service, whose rewards are small in comparison to the services rendered. Many of these men are former business executives or volunteers from the

professions—lawyers, engineers, doctors—all specialists and devoted public servants. Though "East is East and West is West," they all meet at Washington at hearings on legislation affecting industry and trade.

• Here's how to make a color test of economic democracy in America. Take a hint from our August cover and look out a window—the higher the better—at the nearest parking lot. At five to ten stories, you'll see an experiment in color swatches slashed from the rainbow, with daring contrasts and startling combinations. From ten to twenty stories, the cars become a pattern of orderly daubs on a prismatic palette. Conspicuous at any height are the black cars, which may be ancient and worthless but are far more likely to be brand-new and quite expensive. Whatever the height of your vantage point, it is impossible to distinguish the boss's car from the worker's. Any parking lot, especially the well-groomed parking lot beside the modern factory, speaks well for free enterprise in America.

• The income tax law has had a profound influence on the attitude of the business executive toward his work. Because of it, he must increasingly look for other rewards in his job and away from his job. In a coming issue, Arch Patton points out that it takes more than money to satisfy the modern management man or call forth his best efforts. There must be recognition of leadership, opportunity for broad-gaged management action, and participation in industry-wide policy planning. A sense of worthwhileness in achievement is often more desirable compensation than extra dollars, most of which would go to the Collector of Internal Revenue anyway. How companies are adding the extra impetus to executive motivation is described in the article.

Nobody wants to work for nothing, but there is a law of diminishing returns for the material-minded. Beyond it lie the emotional and aesthetic compensations that belong to the realms of the mind and the spirit. Bigness includes scope of mind, spiritual stature, and the power of decisions that can move men as well as mountains.

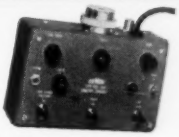
—A.M.S.

you designed IT
CLOSED CIRCUIT
IT

Your needs are top consideration in the design of **Du Mont** Industrial Television. **Du Mont IT** offers you exactly what you need to fully realize the amazing potentials of television in your business or profession . . .

Two great systems

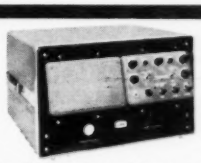
Series 100 Camera is complete in itself. May be used directly with ordinary TV receivers if desired.



Remote control available for focus, lens change, pan and tilt. Also wide choice of camera housings, etc.

Your choice of 17" or 8" monitors that provide bright, sharp pictures even under high ambient light conditions.

Series 200 Camera for super-detailed transmission. Sharpest pictures available, yet extremely compact.



Remote control of camera and mount. Du Mont systems may be expanded at any time with no obsolescence.

Both systems are Du Mont all the way from camera to picture, assuring matched components for top performance.

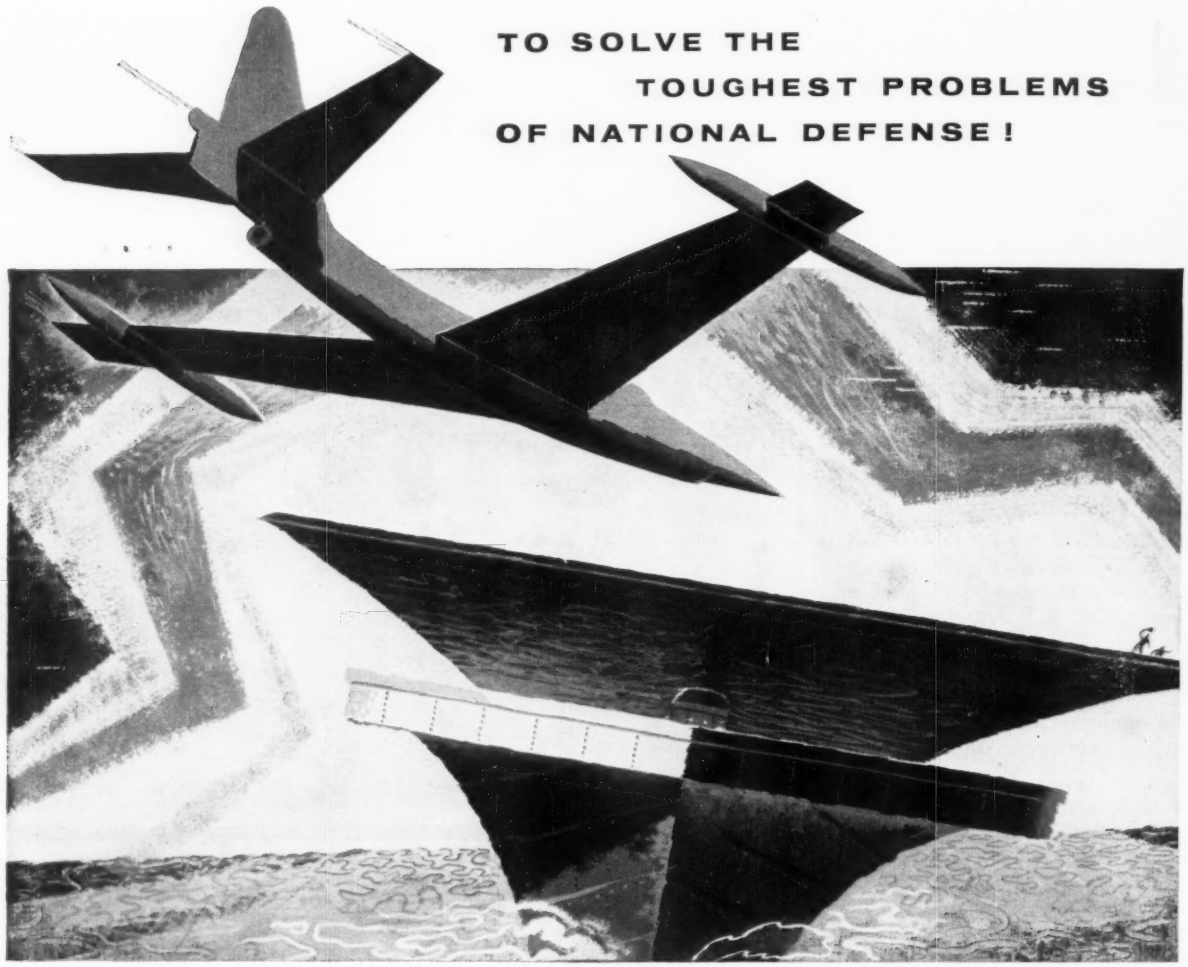
GET THE COMPLETE STORY ON INDUSTRIAL TELEVISION. FILL IN COUPON FOR YOUR COPY OF THE DU MONT INDUSTRIAL TELEVISION HANDBOOK

DU MONT®

Industrial Television Department (D-8)
ALLEN B. DU MONT LABORATORIES, INC.
CLIFTON, N. J.

NAME .....
TITLE .....
COMPANY .....
ADDRESS .....
.....

TO SOLVE THE TOUGHEST PROBLEMS OF NATIONAL DEFENSE!



TOMORROW'S GIANT SUPERCARRIERS . . .

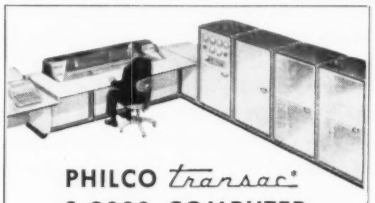
from design to launching in far less time...thanks to IDPS*

*Integrated Data Processing Systems will save much valuable time in creating more effective weapons systems with greater striking power while conserving precious research and engineering manpower.

Time is the most priceless factor in the equation of National Defense. It must be conserved. Highly complex engineering and administrative problems must be solved fast. Because of its fantastic speed and dependability, IDPS will be called upon to solve these problems—and many more—fast and right!

Tomorrow's giant supercarriers are but one example of huge national defense projects which will utilize amazing digital computers to cut engineering time to a fraction.

Fulfilling the need for faster, more reliable and compact large-scale data processing systems, Philco is proud to present TRANSAC* S-2000.



PHILCO *transac*® S-2000 COMPUTER

Here is the world's first all-transistor, large-scale integrated data processing computer . . . years ahead in design and performance . . . another outstanding achievement of Philco research and engineering.

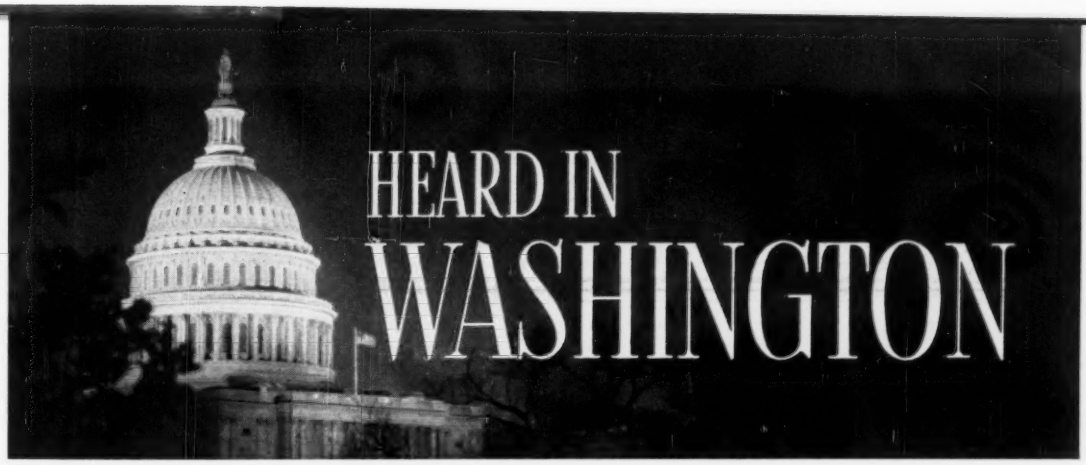
At Philco, career opportunities are unlimited in computer, electronic and mechanical engineering. Look ahead . . . and you'll choose Philco.

**"TRANSAC"—Trademark of Philco Corporation for Transistor Automatic Computer*

PHILCO®

Government & Industrial Division

Philadelphia 44, Pennsylvania



HEARD IN WASHINGTON

WASHINGTON, D.C.—Inflation, a growing threat throughout the Western world, has become the No. 1 problem facing the Administration. It has not, of course, reached crisis proportions; at no time has there been a threat of a runaway situation. But the continued rise in prices is worrying Washington.

After hearing testimony by 33 non-Government witnesses, the Secretary of the Treasury, the Chairman of the Federal Reserve, and other officials before the Joint Economic Committee of Congress, Representative Wilbur D. Mills (D., Ark.) declared that the consequences of an attempt by the Government to control prices and wages would be worse than those of inflation.

While no member of Congress really wants further inflation, political reasons, among others, tend to discourage support in Congressional and Administration quarters for steps proposed to reduce it. This is easily seen if you consider some of the proposals made by Committee witnesses: curbs on unions' power to raise wages, slashing of farm price supports, reduction of defense expenditures, pruning of foreign aid, and slowing down of the highway program.

In his testimony before the Senate Finance Committee, Treasury Secretary George M. Humphrey may have claimed too much for the Eisenhower Administration, but he was able to cite figures proving gains in a number of important areas. Among them were the ratio of the national income to Federal debt, employment, earnings of production workers, personal income, number of homes built last year, home ownership, export trade, fewer controls.

Rising sales have not produced much change in profits, and the volume of appeals reaching Senators and Representatives indicates that this has become one of the chief concerns of the business community. Particularly heavy pressure is being exerted by businesses not in a position to pass on increased costs in the form of higher prices. The mail of the Administration and the Congress is heavy with their complaints.

One point frequently stressed is that depreciation allowances are totally inadequate to cover replacement of equipment at present price levels. But the Government is slow to change amortization rules—and the 1958 tax cut that looked so certain a year ago seems dead.

Republican strategists think they have a good point to emphasize in the campaign for the control of Congress, which is getting under way more than a year before the election date. They plan to point to the "circus" into which the monetary investigation "degenerated." Had the President had his way, they say, there would have been an objective study by highly qualified persons removed from the political arena. Instead, the Democratic leadership insisted that the study should be conducted under Congressional direction. The Republicans intend to argue that much of the questioning was beneath the dignity of the Senate and that the "horseplay" tied up Treasury officials with small-caliber matters day after day when they were facing financing operations more difficult than ever before in the history of the country—at a time, in fact, when the Treasury had to go to the market for $16 billion. The feeling in Administration quarters is that the investigation added nothing to the stature or prestige of the Senate or to the public welfare.

One of the Government's toughest assignments was given to Commerce Secretary Sinclair Weeks when he was designated as chairman of the Cabinet committee to investigate the effects of oil imports on national security. Independent domestic producers, who have great political influence, want imports reduced. Consumers, who are not so well organized or so vocal, think the imports tend to keep prices at lower levels. Questions of conserving domestic resources for an emergency, the need for exploration, and the economies of Venezuela and other foreign sources of oil are involved.

Now that a permanent status has been voted for the Small Business Administration, greater activity in that agency is anticipated. Those known to feel that there is duplication of SBA activities within the Department of Commerce did not voice that objection. The proposal to raise the loan limit to $1 million failed by a narrow margin, leaving the maximum loan at $250,000.

Entering the new fiscal year with $200 million less than it requested, the Commerce Department has had to curtail its activities sharply. Congress took unkindly to the idea of building a reserve of business men who could be called into service in case of emergency. The plan was to take men from industry and give

continued on page 9

SPECTOR MID-STATES

Taking the things of America

where they're needed...

when they're needed

A STEP AHEAD OF TOMORROW—Keeping tab on the ever-changing needs of the shipping community is Step Number One in our total transportation service. Translating those needs into workable methods, practical equipment follows. Often, as in the case of the versatile Mobilvan, our research people find that what they'd thought would be right for "tomorrow" is ready to go to work for you today.

Marketing men tell us that new distribution patterns are firming up fast. Say the word and we'll provide the transportation you need to capitalize on that fact—today *and* tomorrow.

Customerized

FREIGHT TRANSPORTATION SERVICE

between more than 20,000 industrial and commercial markets in 48 states

SPECTOR FREIGHT SYSTEM, INC. **CHICAGO 8** **TERMINALS IN PRINCIPAL CITIES**

ADVERTISEMENT

The World's Largest Research and Development Staff ... the Two of Us!

by **ROBERT E. SHYLIN**
Vice President, Research and Development
Spector Freight System, Inc.

A FEW WEEKS BACK one of our nation's leading traffic executives approached me with the question, "Bob, just what's all this research and development business you people are talking about . . . what's it mean to us?" We'd been working the better part of that morning on a program for the planned loading of small shipments off his assembly line for multiple destination. I had remarked that our research and development staff was certain to be interested in the methods we were in process of working out.

It's interesting to observe how many people regard the term *Research and Development*. Almost to a man they visualize laboratories, test tubes, complicated measuring devices, long columns of statistics. Too few consider their own role and limitless potentials in participating in the research process, in the development of more efficient solutions to problems. For, is it not a fact, that only in the mutual investigation and satisfying of customer wants can both the buyer and the seller (*The Two of Us* . . .) benefit and profit.

For nearly 50 years now, since the very inception of for-hire transportation, American businessmen have regarded the common carrier—rail, truck, water, and air alike—as a public utility. Fixed rights, fixed equipment, fixed rates. Find the carrier most suitable to your immediate needs, employ his services. You had his routing guide, a tariff and a telephone—you took what was available. From time to time, a carrier, or even a mode of transportation, would come up with a new type of equipment or a new method of handling freight. "We have it . . . try it . . . you'll like it." In rare instances would the customer be surveyed on the need for or construction of the new technique or equipment. Rarely, too, was his counsel sought in evaluating its performance.

As post World War II shortages continued to prevail and as the freight business continued abundant, the transportation industry, unlike others, continued reluctant to institute broad programs for experimentation, for research and development. The motor carrier industry itself, despite its progressive tendencies in most service areas, followed the crowd. No doubt the very nature of its small enterprise unit and consequent limited capital was the major deterent to its pioneering in this vital field.

Less than 10 years ago, when the first drafts of the Spector—Mid-States expansion program were being written, it was apparent that no significant growth or prosperity could be accomplished without a comprehensive research and development effort. In charting the firm's now famous *Customerized* philosophy of organization and service, management decreed that the entire physical and functional facility would be built upon the "researched" needs of the customer, developed and evaluated in his terms, too.

To construct a freight transportation service that would best fulfill the growing need for a mass transportation service at a price the mass consumer, directly or indirectly, could afford to pay, required full knowledge of those needs. No guesswork, no speculation. Out of the *Customerized* concept was born a number of unique market research programs: foremost, *the Customer Conference*, where each month a score or more of shippers gather at each Spector—Mid-States terminal to discuss problems of mutual concern. Customer expression is further acquired through field interview by salesmen as part of their contact responsibility, by written surveys taken from time to time on specific matters. In the course of such customer research, Spector—Mid-States management has uncovered many facts, suggestions and attitudes which have markedly influenced the shape and nature of the company's philosophies, facilities and practices. No suggestion is too small or too remote for consideration. No idea, however "*Blue Sky*" it may appear, is casually regarded. We've found, too often, that today's impossibility can well become tomorrow's service advantage.

The Relay System of highway transport, for example, was an idea that would "never work." Modular, flexible container (Mobilvan) units would "never work." (Hadn't they been tried and failed in the early 1900's!) When customers said they liked the idea, we called in our top suppliers and found today's technology very much equal to the assignment of making them work. Advance electronic billing—a dream 5 short years ago. Preliminary closed-control tests promise system-wide use before long.

R and *D* doesn't always apply to the entire market, in fact, rarely does. If a customer requires a special kind of temperature control and we feel it can be developed to our mutual profit, into development it goes. If certain regions call for an unbalanced supply of opentops and flatbeds, we look into the design of a convertible trailer which might do both jobs. If higher capacity trailers are in demand, we work with our trailer makers (and customers) to bring out the most practical unit. And from each of these special requirements usually comes a Spector—Mid-States innovation which, often as not, finds its way into our general service.

Many worthy ideas originate with our suppliers: a new diesel engine, a new sliding 5th wheel, a new dock rack for the handling of small shipments, a new driver uniform design—again, the customer's reactions and evaluation are called upon to determine whether the field tested idea, technique or equipment should find a place in our general service . . . in *his* service.

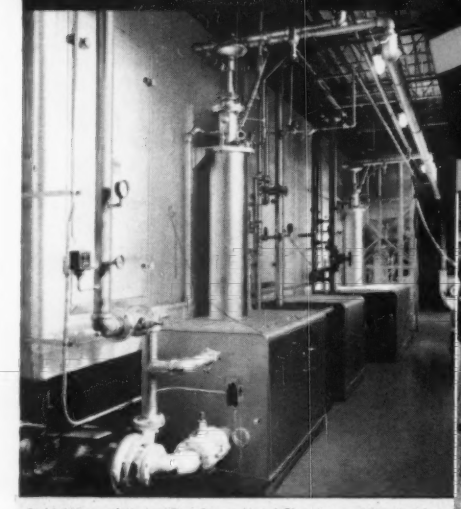
Yes, today's traffic executive is keenly aware of the responsibility he bears in the determination of his company's profit ratio. We of the transportation industry share this responsibility with him. And only through the continuing study of his problems and opportunities, through the continuing development of new facilities, new equipment and new ways of doing things, can we most directly help him fulfill his one vital job objective—efficient *total* distribution of his company's products.

• • •

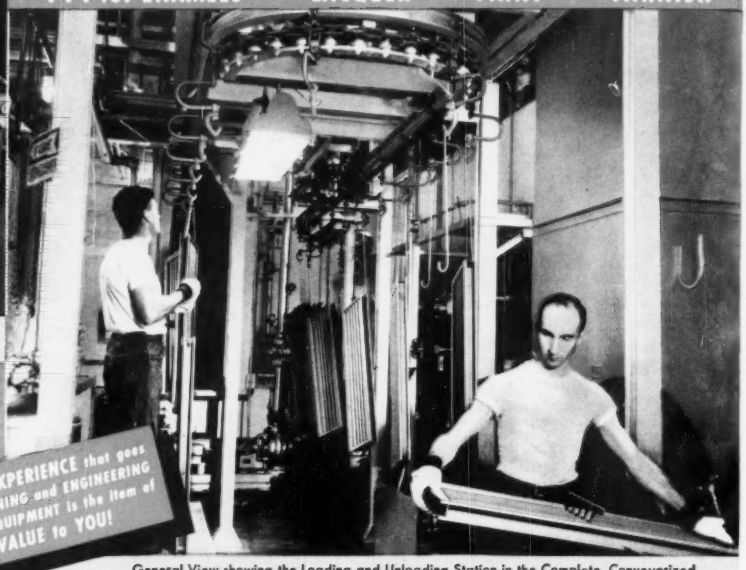
Robert E. Shylin was named to head the Research and Development Division for Spector—Mid-States in early 1957. Formerly Vice President, Terminal Operations, at Mid-States Freight Lines before the firm's merger with Spector Freight System, Inc., Shylin has been associated with motor transportation for more than 20 years, most of them in customer relations capacities. He has served as president of the Chicago Transportation Club and Chairman of the Editorial Committee of the Associated Traffic Clubs of America. Shylin, 44, his wife and their two daughters reside in Oak Park, Illinois.

COMPLETE *Finishing* SYSTEMS

. . . for ENAMELS • LACQUER • PAINT • VARNISH

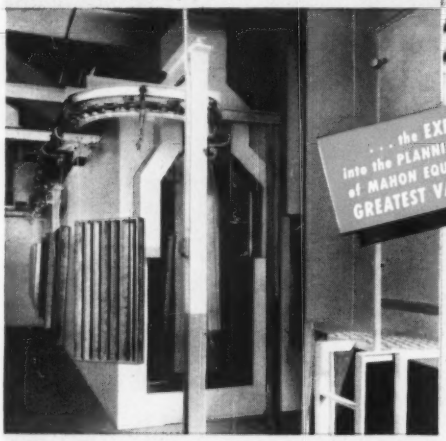


Partial View of Mahon Five-Stage Metal Cleaning and Bonderizing Machine in the Airolite System. Note Patented Fire-Jet Heaters.

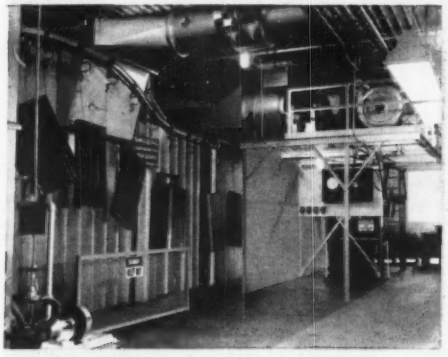


. . . the EXPERIENCE that goes into the PLANNING and ENGINEERING of MAHON EQUIPMENT is the item of GREATEST VALUE to YOU!

General View showing the Loading and Unloading Station in the Complete, Conveyorized Mahon Finishing System recently installed in the Airolite Company's Plant, Marietta, Ohio.



Exit Opening in the Mahon Dry-Off Oven. This Oven is Combined with the Paint Baking Oven and Built as One Direct Gas-Fired Unit.



In the view above you see an Oven Heating Unit and a Control Cabinet which Houses Temperature Recorder and Safety Devices. Ventilated Solvent Vapor Chamber appears at left.

High Quality, Durable Finish on AIROLITE LOUVERS is Produced in a COMPLETE, MODERN MAHON SYSTEM!

The Airolite Company, Marietta, Ohio, manufacturers of high quality fixed and adjustable Louvers of all types, and numerous other metal products, have recently modernized production facilities which now include a complete, new Mahon Finishing System specially designed to accommodate all products presently in production as well as several items planned for the future. The new Mahon Finishing System in the Airolite plant includes a five-stage Metal Cleaning and Bonderizing Machine, Dry-Off Oven, Flow Coating Machine with a Ventilated Solvent Vapor Chamber, and a Paint Baking Oven . . . processing is continuous and automatic from conveyor loading to unloading. This is one of thousands of Mahon finishing systems that have been specially designed and installed in each case to meet the specific requirements of the manufacturer. If you have a finishing problem, or are contemplating new finishing equipment, you, too, will want to discuss methods, equipment requirements and possible production layouts with Mahon engineers . . . you'll find them better qualified to advise you, and better qualified to do the all-important planning, engineering and coordinating of equipment to produce the finest finish at minimum cost. See Sweet's Plant Engineering File for information, or write for Catalog A-657.

THE R. C. MAHON COMPANY • Detroit 34, Michigan

SALES-ENGINEERING OFFICES in DETROIT, NEW YORK and CHICAGO

Engineers and Manufacturers of Complete Finishing Systems — including Metal Cleaning, Pickling and Rust Proofing Equipment, Hydro-Filter Spray Booths, Dip and Flow Coaters, Filtered Air Supply Systems, Drying and Baking Ovens, Cooling Tunnels, Heat Treating and Quenching Equipment for Aluminum and Magnesium, and other Units of Special Production Equipment.

MAHON

them responsible positions for six months to allow them to familiarize themselves with Government methods. The Administration regarded this as in the public interest, but some members of Congress were suspicious. They felt that the business men would use their Government positions to secure special favors for their companies.

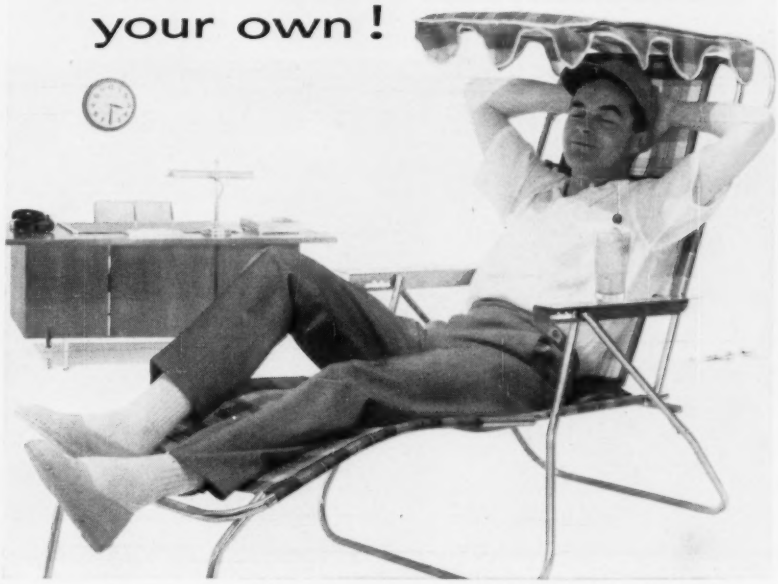
While labor unions are exempt from the antitrust statutes, various bills have been introduced that would apply somewhat similar restraints to them. Bills of that nature are, as a matter of routine, referred to the Department of Justice for report. Were the Department to display the same zeal in reporting on such measures as it has shown in cracking down on business, some lawmakers are saying, legislation intended to protect consumers who are the victims of the wage-price spiral would receive some needed encouragement.

Should the United States extend any kind of economic aid to Soviet satellite nations? Officials and legislators have increasingly serious doubts. Negotiations with Poland for patents and equipment to modernize its steel industry have raised the question whether this will be effective in weaning Poland away from the Communist bloc or will simply supplement the steel industry of the U.S.S.R. A similar deal involving chemicals is in the offing.

A month ago it seemed probable that the first session of the 85th Congress would not pass much legislation. Now it is definite. Partisan politics, divided parties, and highly controversial issues are causes of the poor showing. Usually the more controversial matters are disposed of in the "off" year when no elections are pending. But now an unusual amount of such legislation will face the second session in January of the election year. Political expediency will probably take precedence over wise legislative action.

Paul Wooton

The time you save may be your own!



YOU'LL DUCK HOURS OF PAPER WORK
WHEN YOU HAVE A KODAK VERIFAX COPIER

LIKE TO get away early today? Or would you just like more time to think? Try the pencil trick, used by thousands of busy executives to speed communications and lighten the office load. Works like this: when a letter asks questions—jot the answer in the margin and mail a Verifax copy as your reply. When a report refers to several departments—jot again . . . send each a Verifax copy.

Big break for your secretary, too. Saves her pages of dictation and typing. Takes her only 1 minute to make 5 Verifax copies of anything you hand her. Cost: just 2½¢ each. Chances are your savings the first month will pay for your copier.

Free—new Don Herold booklet. Famous cartoonist-humorist's booklet has smiles—and work-saving tips—for bosses and secretaries on every page. How to end the "quoting" habit • How to do "all-day" retyping jobs in 20 minutes • How to make an offset master in 1 minute. Mail coupon for free copy. Or phone nearest Verifax dealer, listed in "yellow pages" under "Photocopying Machines."

Price quoted subject to change without notice.

ONLY $148 . . . New Verifax Signet Copier makes 5 copies in 1 minute for 2½¢ each . . . gives you dry copies, as accurate and long lasting as the original. It's a *completely different copier.*

Verifax Copying

DOES MORE . . . COSTS LESS . . .
MISSES NOTHING

----------MAIL COUPON TODAY----------

EASTMAN KODAK COMPANY, *Business Photo Methods Division*
343 State Street, Rochester 4, N. Y.

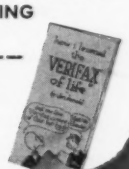
Gentlemen: Please send free copy of Don Herold's new booklet, "How I Learned the Verifax of Life." 4-8

Name_____ Position_____

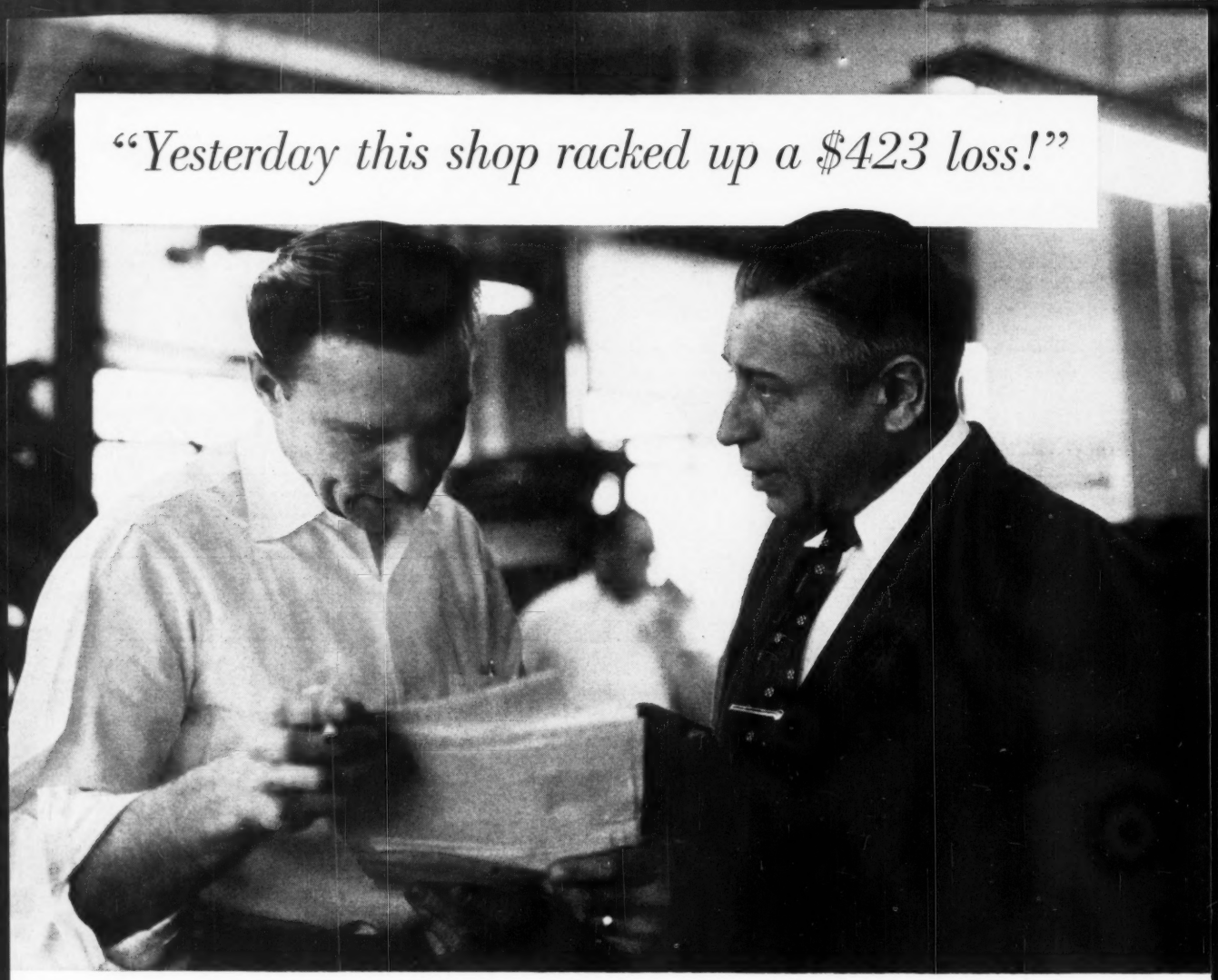
Company_____

Street_____

City_____ State_____



Kodak
TRADE MARK



The foreman's bewildered. How can the plant manager be so sure? Even in a small shop like this one, you don't get *that* kind of information in 24 hours!

The plant manager never thought so, either. Today he knows different. He's got yesterday's down-time figures right in front of him. There's a loss all right. But he knows where – and why. And most important, he knows now that he's equipped to prevent its happening again.

How did the plant manager get such fast, reliable information? With the Keysort Plant Control Plan. Instead of the late or inadequate reports he *used* to get, PCP now gives him an accurate breakdown of each day's labor costs *by the following afternoon*. Keeping abreast of things almost as they happen, he can correct money-losing situations *in time* . . . can keep production flowing on a profitable level.

With just five fast, accurate Keysort PCP reports—1 daily, 2 weekly, 2 monthly—you can obtain complete modern management control of your business and your profits. At remarkably low cost.

The nearby McBee man has a presentation which will show you how it's done. Phone him, or write us for illustrated folder containing an example of each report.

McBEE KEYSORT®

Punched-card accounting for any business

Manufactured exclusively by **The McBee Company, Athens, Ohio** • Division of Royal McBee Corporation
Offices in principal cities • In Canada: The McBee Company, Ltd., 179 Bartley Drive, Toronto 16, Ontario

Devaney Photograph

- **Wage pressures . . . and labor's communications punch**
- **Profit: forgotten incentive, primary responsibility**
- **The benefits of industrial dispersal**

Top management speaks up on these key issues

UNIONS AND INFLATION: THREAT AND CHALLENGE

ROBERT C. TYSON, *Chairman, Finance Committee, United States Steel Corporation, at National Industrial Conference Board.*

A brand-new kind of inflation has come to us in America. . . . There are several features of this wage inflation worth attention. Note first its frightening speed. . . . Note second that it is surprisingly universal and uniform. . . . A third and most disturbing feature of wage inflation is what appears to be its almost complete insensitivity to economic forces as we learned about them in school. . . .

It will almost surely prove futile to try to explain wage inflation exclusively in terms of the usual concepts in the economist's tool-chest. . . . They are insufficient tools of investigation because that with which we are primarily dealing in wage inflation is the nature, the growth, and the administration of power—power granted by law, and enjoying public acceptance and support. . . .

How this rising power of the exclusive bargaining agents is administered is a simple story of human nature. If you or I had chosen union leadership as a career, I think we would have acted exactly as most honest union leaders actually have. We would find ourselves in a situation where success was to be measured almost solely by the extent to which we were able to obtain ever greater wages and benefits for the employees we represented. . . . Each new gain made by others would automatically have to become the starting point of the gains we next sought.

FRED C. FOY, *President, Koppers Co., before U.S. Chamber of Commerce.*

Labor and industry are working for a better America tomorrow. But the ideology that each believes in is considerably different. . . . Both sides assemble their arguments. Both sides have their economists and technicians preparing the

OUTPERFORMS and Out Values all lift trucks in its class

Regardless of Price!

ENGINEERED YEARS AHEAD

- Complete bearing control throughout
- Synchronized 12-volt heavy duty system
- Feather-controlled stops
- Equipped with automatic charger and heavy duty industrial battery
- Self-aligning dual floor brakes

OPERATES IN 28" AISLES

APPLICATIONS

- Hydraulic loading, unloading, stacking, moving, any type of material... in large or small plants.

MORE THAN 40 BIG JOE MODELS

- Range up to 2000 lbs. capacity
- Lifting heights to 130"

NEW 24-PAGE CATALOG

In-Between Handling is our business! Write for our new 24-page catalog.

THROUGHOUT THE WORLD

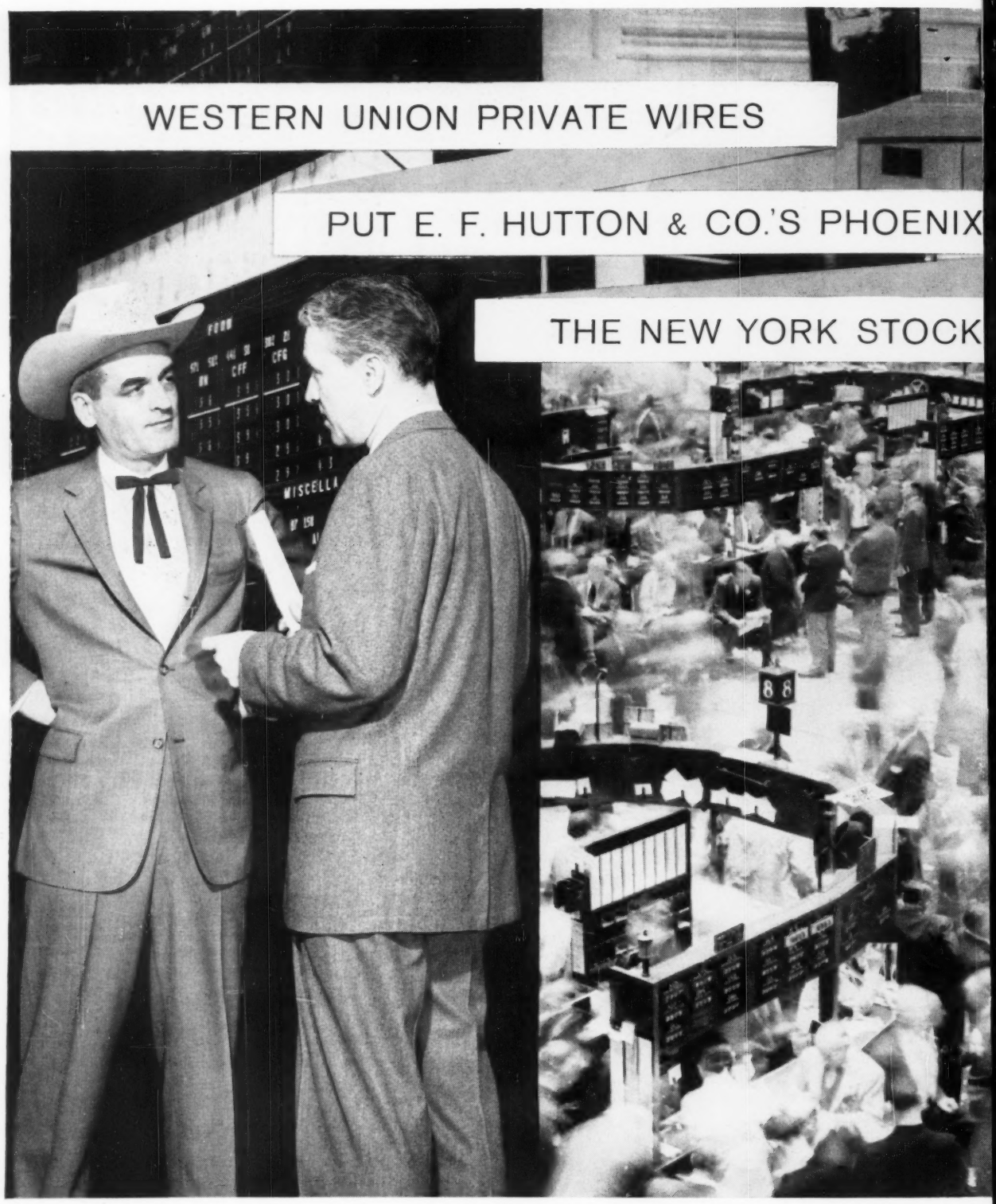
Export Division: 400 West Madison St., Chicago

BIG JOE Hydraulic Lift TRUCKS

BIG JOE

MANUFACTURING CO.
Ralph Hines Road
Wisconsin Dells, Wisc.

©1957



E. F. Hutton & Company's Phoenix office is one of the many branch offices coast to coast linked by Western Union private wires.

WESTERN UNION

Western Union sets a new standard in brokerage communications–where speed and the written record are vital

Custom-built, engineered and maintained by Western Union, E. F. Hutton & Company's fully automatic private wire system links offices from coast to coast. It is the world's newest and most efficient. Orders are flashed to Hutton's New York office—immediately transmitted to the Exchange —confirmation is accomplished with equal speed.

The system is fully automatic. It gives priority business—buy and sell orders—instantaneous right of way over nonpriority routine messages and general market information. It "remembers," so that messages cannot be lost or forgotten. And it is used in integrated data processing—for accounting, billing and filing entirely by machine.

How about your business? Western Union can tailor-make a private wire system to fit *your* communications needs. For more information, send a collect wire today to Western Union, Private Wire Division, New York. *It may well be your single most important decision of 1957,*

WESTERN UNION
TELEGRAM

. . . first in private wire systems

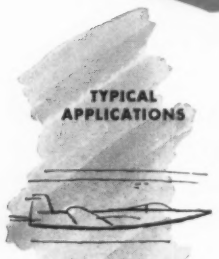
look at these advantages of

IRIDITE® FINISHES

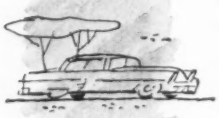
for

CORROSION-RESISTANCE, PAINT BASE on ALUMINUM and MAGNESIUM

TYPICAL APPLICATIONS



Aircraft and Missile Parts



Automobile Hardware

Outdoor Furniture

Communications Equipment

Marine Equipment

EASE OF USE—Iridite is a simple chromate conversion treatment. Fast, easy, economical. You just dip, brush or spray it on the part at room temperature. No special equipment. No specially trained personnel.

OUTSTANDING PERFORMANCE—Forms a film that is an integral part of the metal itself. Can't flake, chip or peel. Takes paint firmly on initial application, and the bond lasts. Even protects areas scratched in use.

LOWEST COST—You have only minimum equipment cost, no special racks, high speed operation, lower overall handling costs.

CHOICE OF APPEARANCE—Clear coatings that retain metallic lustre to dark, maximum protection coatings. A variety of colors is available by dyeing.

IRIDITE # 14 and # 14-2 (Al-Coat) for ALUMINUM

Two specially formulated finishes that give you maximum latitude in aluminum treatment. Both provide excellent corrosion protection and paint base. Iridite #14-2 is an improved product that allows greater flexibility in operation and coating thickness and produces the optimum in corrosion protection.
Either coating provides corrosion resistance superior even to complicated electrolytic treatments in a fraction of the time. These coatings also offer many other valuable characteristics: they have low electrical resistance, they aid in arc-welding, provide a good base for bonding compounds, have no effect on the dimensional stability of close-tolerance parts. Final appearances ranging from clear through yellow iridescence to full brown can be obtained. By dyeing, you can produce red, green, blue, orange or yellow finishes.

IRIDITE # 15 for MAGNESIUM

Produces a protective, paint base film with corrosion resistance at least equal to that obtained from long, high-temperature dichromate treatments in a fraction of the time and at room temperature. The appearance of the coating can be varied from light brown to dark brown and black.

APPROVED UNDER GOVERNMENT AND INDUSTRIAL SPECIFICATIONS

SEE FOR YOURSELF WHAT IRIDITE CAN DO . . . SEND SAMPLE PARTS FOR FREE PROCESSING. Look at the results, test the protection, evaluate the savings. Also write for handy Reference File of the most complete data published on chromate conversion coatings. Or, for immediate information, call your Allied Field Engineer. He's listed under "Plating Supplies" in your classified phone book.

ALLIED RESEARCH PRODUCTS
INCORPORATED
4004-06 E. MONUMENT STREET • BALTIMORE 5, MD

Manufacturers of Iridite Finishes for Corrosion Protection and Paint Systems on Non-Ferrous Metals; ARP Plating Chemicals.
West Coast Licensee—L. H. Butcher Co.

evidence. Both sides are trying to get their views before the people. . . .

We have just completed a special study, covering the first three months of 1957, to determine whether or not companies are becoming more vocal on controversial issues in their employee publications. . . . The seven most widely circulated union publications in the United States were analyzed to determine how these official union publications have presented the union leaders' viewpoints on: (1) price-wage spiral, (2) right-to-work laws, (3) corporate profits, (4) proposed revisions of the Taft-Hartley Act, and (5) extension of the minimum wage act.

A total of 103 articles were printed on these subjects. Without exception all articles presented *definite* opinions of union leaders. . . .

In a survey of employee publications of the 50 largest corporations in the United States, *three* of the 37 corporations responding took a direct stand on one or more of the five controversial subjects. . . .

The question is whether management will get in the ring too or lose the battle . . . on an editorial TKO.

PROFIT: INCENTIVE AND RESPONSIBILITY

DR. LELAND I. DOAN, *President, The Dow Chemical Company, before the Manufacturing Chemists' Association, Inc.*

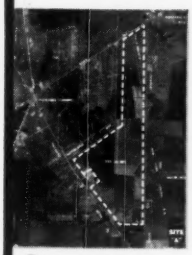
We have learned, sometimes the hard way, that business, if it is to be successful and enduring, must be operated *within the framework* of public interest. . . . But I hope we never kid ourselves that we are operating *for* the public interest *per se.*

Our first responsibility is profitable operation. That is the simple and perfectly honorable purpose underlying any economic endeavor. As employees of the owners, it is our job to return a profit. We are custodians of their money, charged with the duty of seeing that it earns and grows. All our secondary responsibilities hinge on profit.

more views on page 16

EIGHT PLANT SITES

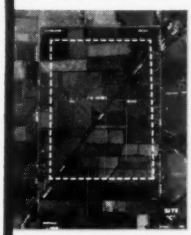
in the Buffalo-Niagara area of the St. Lawrence Seaway offer new opportunities



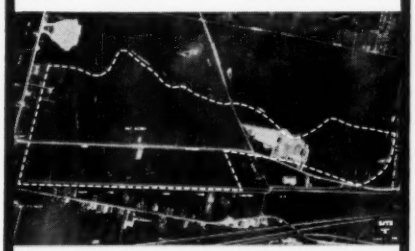
Ⓐ NIAGARA FALLS
(Town of Niagara), N. Y.

Ⓑ SANBORN
(Town of Wheatfield), N. Y.

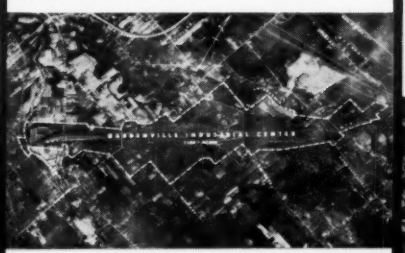
Ⓓ Ⓓ-1 TONAWANDA, N. Y.



Ⓒ BEACH RIDGE, N. Y. Ⓖ DEPEW, N. Y.



Ⓔ CHEEKTOWAGA, N. Y.



Ⓕ GARDENVILLE, N. Y.

Ⓗ LANCASTER, N. Y.

With the development of the St. Lawrence Seaway, the Buffalo-Niagara area offers unusual opportunities for access to the world's raw materials and to world markets. An abundance of low-cost electric power is available for diversified industrial growth.

Eight typical industrial locations are described and illustrated in our new brochure "Greater Buffalo-Niagara Industrial Sites."

You'll find, in the Greater Buffalo-Niagara Area, the additional requirements you need to expand your business. Direct rail transportation service from the New York Central Railroad to the nation's richest markets . . . easy access to New York State Thruway . . . experienced industrial and world-wide banking facilities . . . large pool of skilled and unskilled labor.

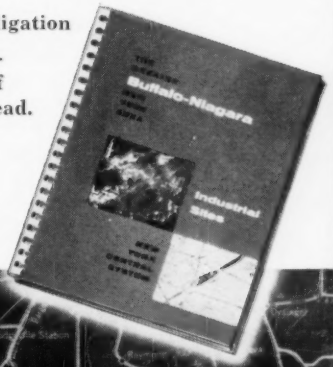
We also have other Central plant sites in this general area as well as good industrial sites along the entire route of the New York Central Railroad. Let us help you find a Central location that meets your requirements.

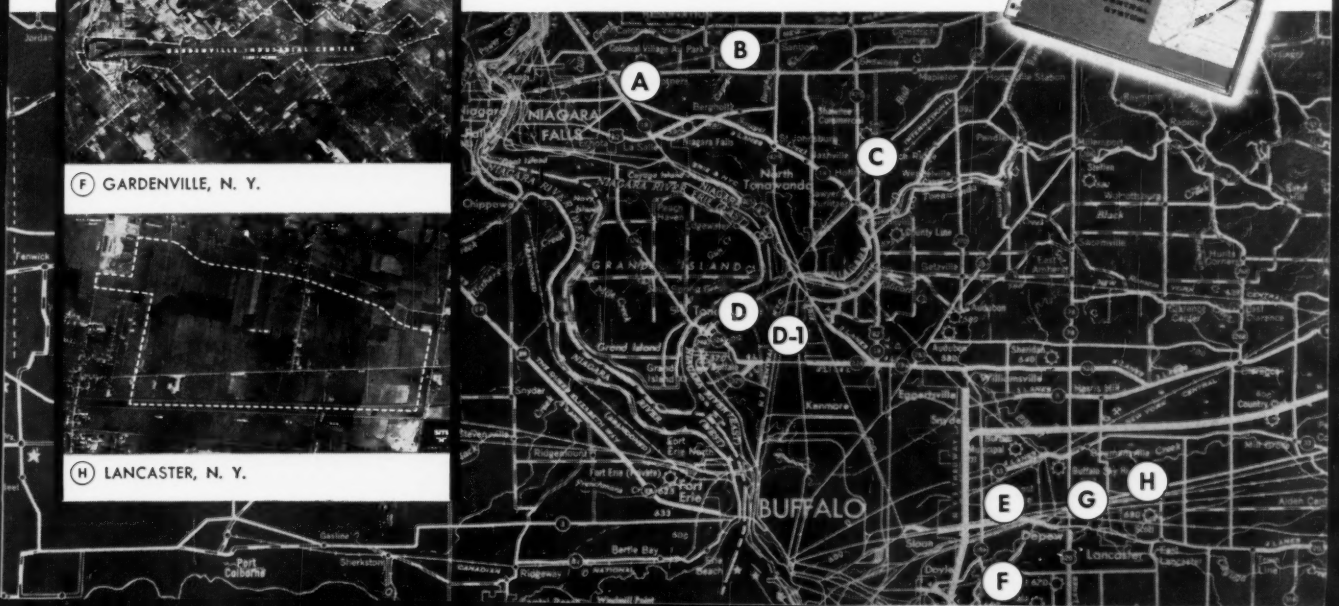
Route of the "EARLY BIRDS"—the one-day faster freight service

New York Central Railroad

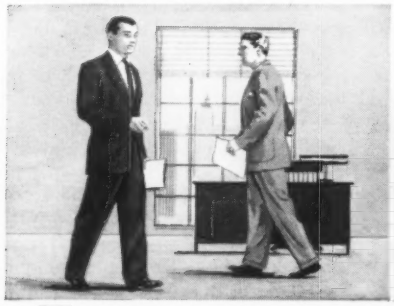
Send for illustrated brochure today—no obligation

A copy of "Greater Buffalo-Niagara Industrial Sites" will be sent to executives free of charge when requested on a business letterhead. Write to:
Industrial Development Dept. P
New York Central Railroad
466 Lexington Avenue
New York 17, N. Y.

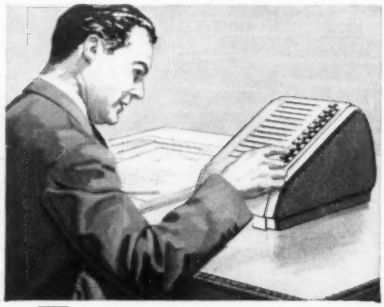




Which do you pay for?



☐ WALKING TIME



☐ WORKING TIME

New Executone intercom stops wasteful walking, speeds output, cuts costs, quickly pays for itself!

Don't let non-productive "walking time" walk away with your profits! Make every working hour give you more *working minutes!* Executone's instant and crystal-clear voice-to-voice contact links departments in split seconds. You get more work done faster—*at lower cost!*

Get the *proof* that Executone pays for itself quickly—*and many times over!* Learn how Executone banishes the time and money waste of snarled switchboards, hard-to-locate employees, and delayed production! Thousands of firms, large and small, have cut costs, increased output and profits with Executone. And Executone's many plus features make it the world's most advanced intercom system. *Mail the coupon now!* Let us show you how Executone can be profitably applied in *your* business. *No obligation.*

Executone
INTERCOM SYSTEMS

EXECUTONE, INC., Dept. A-1, 415 Lexington Ave., New York 17, N. Y.

Without obligation, please send me full data on Executone Intercom. I am particularly interested in:

- ☐ INTER-OFFICE COMMUNICATION
- ☐ INTRA-PLANT COMMUNICATION
- ☐ SWITCHBOARD RELIEF
- ☐ LOCATING PERSONNEL
- ☐ HIGH NOISE LEVEL COVERAGE

Name_____
Title_____
Firm_____
Address_____
City_____

In Canada—331 Bartlett Ave., Toronto

ARTHUR A. BERARD, *President, Ward Leonard Electrical Company, before National Metal Trades Association.*

Profit is the incentive to risk. It is the balance wheel of economic progress. . . . In a dynamic and changing economy, without the profit motive there would be no desire for gain, and thus the driving force to provide more goods for more people would be eliminated. Without profit, that small increment which remains after the cost of doing business, there would be no incentive to produce. . . . Profit-making ability requires judgment, courage, tenacity, and foresight.

AN ADVENTURE IN ECONOMIC REDISCOVERY

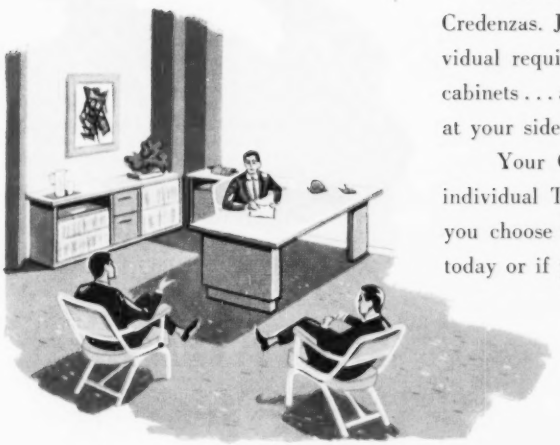
ELMER F. TWYMAN, *Vice President, The Yale & Towne Manufacturing Company, at National Citizens Planning Conference.*

Everywhere around us there are being released new potentials of growth and greatness. Places once thought of as "off limits" to industrial development are now centers of industrial activity.

In the adventure of rediscovery, we are finding that there is land in all parts of our great country where industry can be established and where it can flourish; we are finding that everywhere there are men and women with skill and aptitude for even the most complex industrial tasks. Our systems of communication and transportation have narrowed the expanses of time and space. . . .

One result of rediscovery has been the continuing dispersal of industry away from large, concentrated centers, over the length and breadth of the country. In an age of atomic weapons this is, of course, good for defense and security. But transcending this good are the tremendous benefits that dispersal is creating in fostering economic growth. The decentralization of industry is equalizing prosperity for all.

GLOBE-WERNICKE makes business a pleasure



The newest way is G/W Techniplan combined with Streamliner Credenzas. Just imagine an arrangement custom-tailored to fit your individual requirements complete with bookcases, box drawers, file drawers, cabinets . . . all within an easy arm's reach. Important business tools are at your side, leaving your desk top clear and free.

Your Globe-Wernicke dealer* will be glad to show you the many individual Techniplan and Credenza components available. He will help you choose from a wide selection of combinations and colors. Call him today or if you wish, write us direct Dept. A-C8.

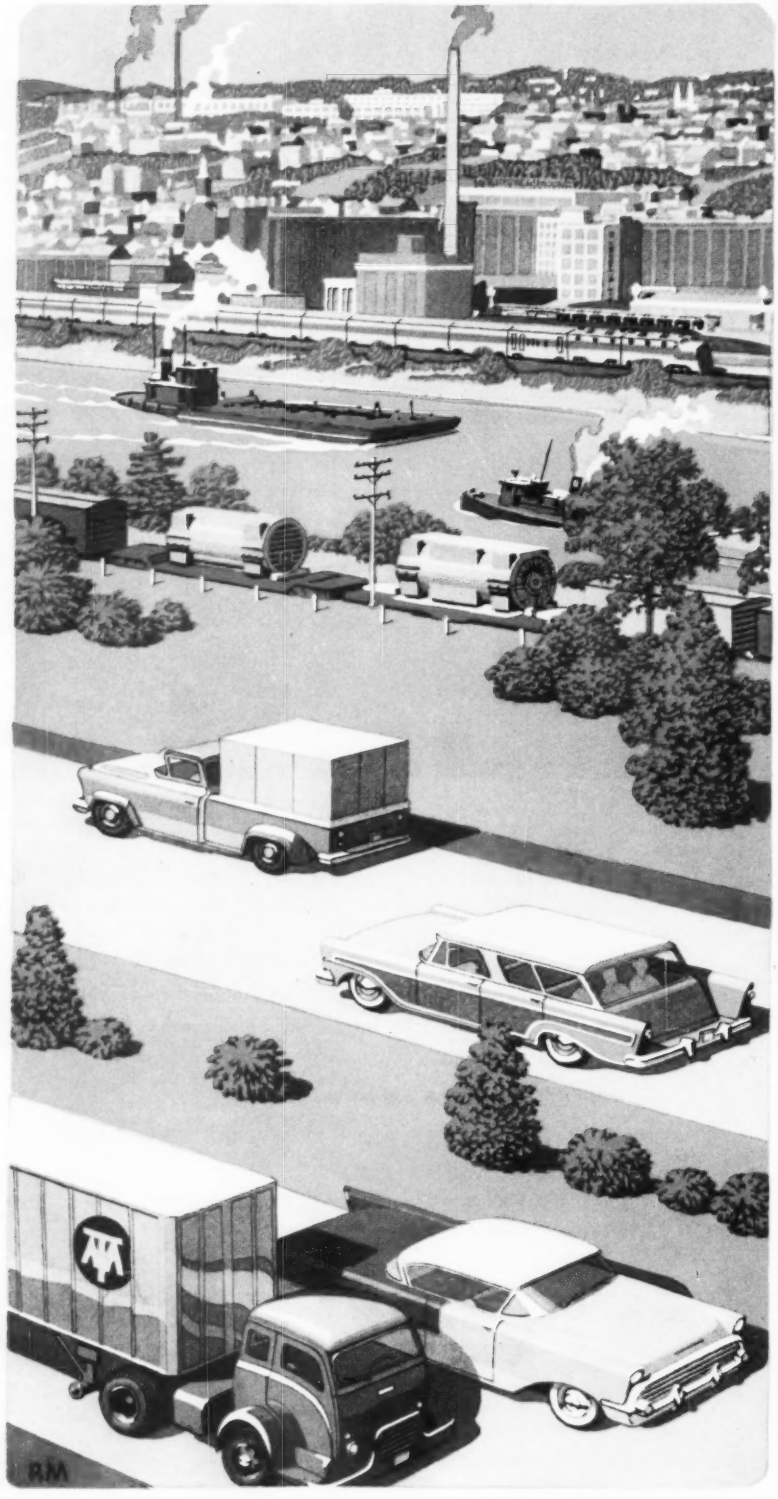
*dealers listed in the Yellow Pages under "Office Furniture."

GLOBE-WERNICKE

CINCINNATI 12, OHIO

FOR 75 YEARS, MANUFACTURERS OF THE WORLD'S FINEST BUSINESS EQUIPMENT, SYSTEMS, AND FILING SUPPLIES

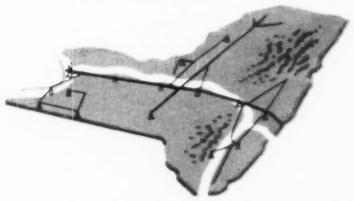
"UPSTATE, N.Y."



IF you're planning expansion, consider Amsterdam. Within six months, six new industries have located in this city. Here is fast, cheap transportation via the N. Y. State Thruway, N. Y. Central Railroad and the Barge Canal. All within overnight shipping distance to half of America's markets and merely hours from New York City.

Other benefits: available plants, developed industrial sites, top-rated schools, glorious vacationlands right next door. Add to these the advantages of low-cost electricity and natural gas from Niagara Mohawk's intercommunity system.

Executives who make expansion decisions are looking into "Upstate, N. Y." Get the *full* story on what this booming area has to offer *you*. Drop a line to Earle J. Machold, President, Niagara Mohawk Power Corporation, Syracuse, N.Y.



The New York State Thruway flows through the heart of the Niagara Mohawk System . . . an area of opportunity for business seeking a new home near rich markets, with a wealth of natural resources at hand.

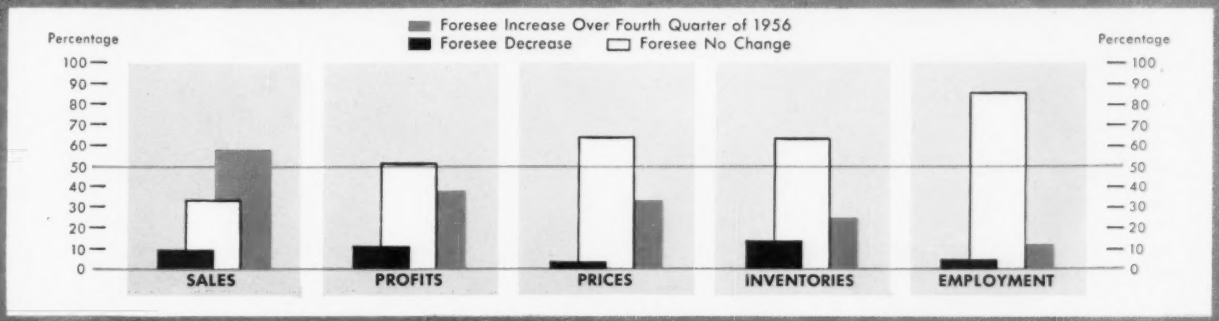
powered by
NIAGARA
MOHAWK

NIAGARA MOHAWK

BUSINESS MEN'S EXPECTATIONS

Here are the opinions of 1,469 representative business executives interviewed recently by trained Dun & Bradstreet reporters

FOURTH QUARTER 1957



HIGHER SALES than a year ago were foreseen for the fourth quarter of 1957 by more than half of the business men interviewed in the latest DUN & BRADSTREET survey of business men's expectations. Most executives expected price rises, rather than expansion in unit volume, to account for part of the increase in gross sales.

For every manufacturer who felt his company's sales volume in the fourth quarter might fall below that of a year ago, eight manufacturers expected an increase in sales. Manufacturers of nondurable goods were more optimistic than business men in other lines: 61 per cent expected increased sales.

Roughly, nine out of ten of the executives interviewed expected net profits to be as good as or better than a year ago. Wholesalers were generally somewhat less optimistic than the others, although 35 per cent of them also anticipated a rise in net profits. Judging from the survey, prospects for higher profits may not be quite so bright as those for higher sales. Still, business men who expected increased profits were far more numerous in all the industry groups than those who anticipated declines.

High selling prices will probably be sustained in the fourth quarter of 1957. While two-thirds of the business men foresaw no change from year-ago levels, eleven times as many anticipated an increase as expected to reduce their selling prices.

Compared with other business men, fewer manufacturers of nondurable goods foresaw price changes in the last quarter of 1957. Higher prices than at the end of 1956 were predicted most often by wholesalers.

The proportion of manufacturers planning to expand their inventories in the fourth quarter over last year's levels was somewhat smaller than the proportion of either wholesalers or retailers who anticipated inventory increases.

A large majority of all business men, 85 per cent, thought they would need at least as many workers on their payrolls in the fourth quarter of 1957 as a year ago. A larger workforce was foreseen by 20 per cent of the manufacturers of durable goods and 10 per cent of nondurables, 7 per cent of the retailers, and 6 per cent of the wholesalers.

Half of the manufacturers of nondurable goods anticipated more new orders than a year ago in 1957's fourth quarter, while 47 per cent expected no change.

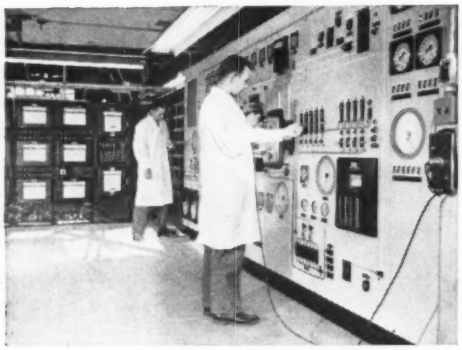
THE FOURTH QUARTER OUTLOOK

A COMPARISON OF 1957 WITH 1956

Percentage Breakdown of Opinions Expressed

	ALL CONCERNS			MANUFACTURERS			WHOLESALERS			RETAILERS		
	Increase	Unchanged	Decrease	Increase	Unchanged	Decrease	Increase	Unchanged	Decrease	Increase	Unchanged	Decrease
SALES	58	33	9	59	34	7	58	33	9	57	32	11
PROFITS	38	51	11	40	50	10	35	53	12	36	52	12
PRICES	33	64	3	28	69	3	42	55	3	32	65	3
INVENTORIES	24	63	13	22	64	14	26	61	13	26	62	12
EMPLOYMENT	11	85	4	15	82	3	6	90	4	7	88	5
NEW ORDERS	..	..	..	48	46	6	..	..	..	..	..	..

Taking the measure of tomorrow...



Developments from the modern research laboratories of Curtiss-Wright serve many industries today — lay the groundwork for future achievements.

An airplane powered by a Curtiss-Wright engine has flown so fast that a noon take-off in New York would land it in California at 10:20 A.M. same day—turning back the clock!

A Curtiss-Wright nuclear gauge measures the thickness of fast moving sheet materials during production—without touching them.

Curtiss-Wright produces a heat-registering paint for recording the temperatures of working parts in action.

The fields of Curtiss-Wright activity are continually broadening, and now include products for nearly every major industry . . . products of imaginative engineering in electronics, atomic power, plastics, metallurgy, ultrasonics, aviation . . . products of Curtiss-Wright research that continually take the measure of tomorrow.

RESEARCH DIVISION

***Research* by CURTISS-WRIGHT**

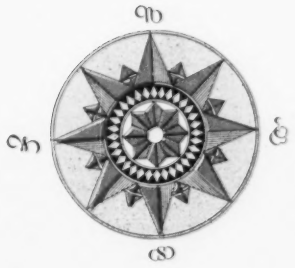
CORPORATION • QUEHANNA, PA.

Divisions and Wholly Owned Subsidiaries of Curtiss-Wright Corporation:

Wright Aeronautical Division, *Wood-Ridge, N. J.* • Propeller Division, *Caldwell, N. J.* • Plastics Division, *Quehanna, Pa.* • Electronics Division, *Carlstadt, N. J.* Metals Processing Division, *Buffalo, N. Y.* • Specialties Division, *Wood-Ridge, N. J.* • Utica-Bend Corporation, *Utica, Mich.* • Export Division, *New York, N. Y.* Caldwell Wright Division, *Caldwell, N. J.* • Aerophysics Development Corporation, *Santa Barbara, Calif.* • Research Division, *Clifton, N. J. & Quehanna, Pa.* Industrial and Scientific Products Division, *Caldwell, N. J.* • Curtiss-Wright Europa, *N. V., Amsterdam, The Netherlands* • Turbomotor Division, *Princeton, N. J.* Marquette Metal Products Division, *Cleveland, Ohio* • Curtiss-Wright of Canada Ltd., *Montreal, Canada* • Propulsion Research Corporation, *Santa Monica, Calif.*

THE TREND OF BUSINESS

- ***Housing Up***
- ***Consumer Spending Rises***
- ***Personal Income to Advance***
- ***Output High***
- ***Inventories Adjusted***
- ***Investment Outlook Good***



COMPASS POINTS ON PAGES 22 AND 23

The economy takes a breather

Business has been milling around in recent months. On a seasonally adjusted basis, total output of goods and services—gross national product—rose about as much dollarwise last quarter as in the first quarter (Compass Point 20). Once again, however, inflation accounted for a fair part of the increase. The over-all wholesale price index moved irregularly and its nonfarm and nonfood component actually declined from the February peak in March and again in May. But both the consumer price index and the composite index of construction costs continued to advance (see Compass Points 7 and 9).

A significant rise in disposable personal income took place during the quarter. At the same time, however, the Federal Reserve Board index of industrial production dropped slightly, nonfarm employment seems to have increased scarcely more than seasonally, the decline in unemployment was smaller than seasonal, and hours worked per week in manufacturing slid off. (For the relevant figures, see Compass Points 13, 16, 5, 6, and 11.) It is possible, too, that post-tax corporate profits fell off moderately in the second quarter.

After allowing for depressing seasonal factors, it seems doubtful whether a real pickup in the economy has yet taken place, even though incomplete data suggest some improvement since mid-June.

Forecast: continued fair

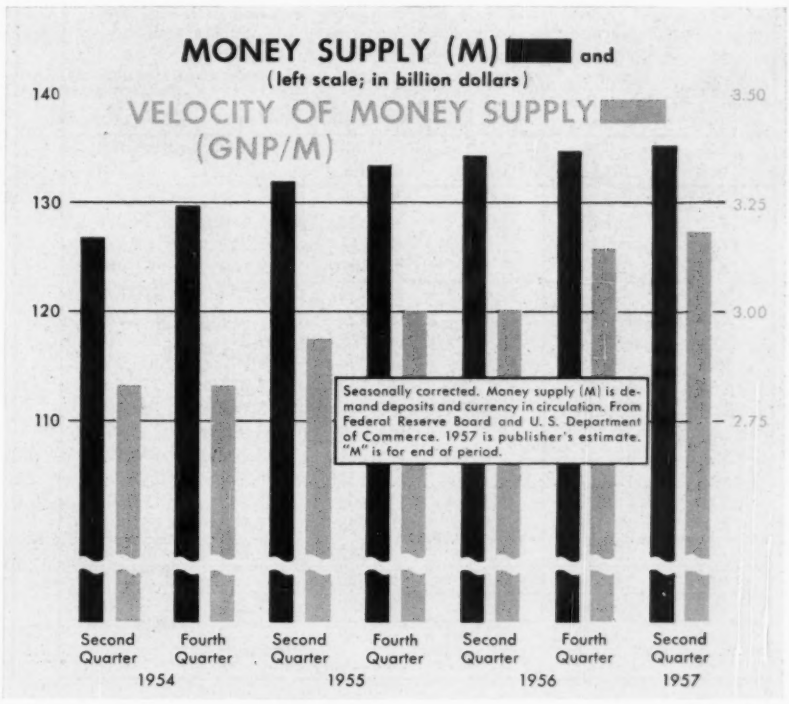
This general sluggishness, coupled with continued tightening of the money markets and uncertainties about disarmament, is again causing widespread concern over the near-term prospects. On the whole, however, there seems to be no reason to make any important change in the summary appraisal made in July's *Trend of Business*. Unless the monetary authorities act to hold the growth in the money supply below the corresponding 1956 rate (see chart below), there will soon be an upward push in activity sufficient to carry GNP (seasonally adjusted annual rate) close to $455 billions—around 5 per cent above its current level—by mid-1958.

Public outlays to rise

A look at the major components of demand, taking into account recent information bearing on their prospects, will make clear the basis for this judgment.

To begin with, spending still seems certain to advance at all levels of government. Any move toward joint disarmament, or unilateral reduction in the U.S. armed forces, will affect the Defense Department's physical program for fiscal 1958 (accounting for the biggest chunk of Federal outlays) only marginally, if at all. The estimate of national security expenditures underlying last month's projection was predicated on this program. It was higher than the Administration's budget estimate, primarily because of a belief that our budget-makers had underestimated, as in fiscal 1957, the effects of inflation on unit costs of military hard goods.

text continued on page 24



After allowing money supply to expand freely during the recovery from the 1953–1954 recession, the Federal Reserve Board has put on the brakes. Since the end of 1954, the supply has risen less than total spending. This has forced greater economy in the use of funds.

CENSUS

Number of households rose 14% since 1940

	1 POPULATION *Millions*	2 NAMES IN REFERENCE BOOK *Thousands*
'57 II	171.0	2,654
'57 I	170.2	2,659
'56 IV	169.4	2,650
'56 III	168.6	2,647
'56 II	167.8	2,639
'56 I	167.2	2,643
1956	168.2	2,645
1955	165.3	2,640
1954	162.4	2,639
1953	159.6	2,673
1952	157.0	2,643
1951	154.4	2,614
1950	151.7	2,692
1949	149.2	2,684
1948	146.6	2,555
1947	144.4	2,410
1946	141.3	2,146
1939	130.9	2,116
1932	124.8	2,077
1929	121.8	2,213
1919	105.1	1,711
1914	99.1	1,655

EMPLOYMENT

Job totals reached record levels in trade, finance, services. Farm employment up slightly

	3 EMPLOYMENT Civilian *Millions*	4 EMPLOYMENT Agricultural *Millions*	5 EMPLOYMENT Nonagricultural *Millions*	6 UNEMPLOYMENT *Millions*
'57 II	65.3	6.3	59.0	2.9
'57 I	63.2	5.2	58.0	3.1
'56 IV	65.3	6.2	59.1	2.3
'56 III	66.5	7.5	59.1	2.3
'56 II	65.2	7.1	58.1	2.7
'56 I	62.9	5.6	57.3	2.9
1956	65.0	6.6	58.4	2.6
1955	63.2	6.7	56.5	2.7
1954	61.2	6.5	54.7	3.2
1953	61.9	6.5	55.4	1.6
1952	61.3	6.8	54.5	1.7
1951	61.0	7.1	54.0	1.9
1950	60.0	7.5	52.5	3.1
1949	58.7	8.0	50.7	3.4
1948	59.4	8.0	51.4	2.1
1947	58.0	8.3	49.8	2.1
1946	55.2	8.3	46.9	2.3
1939	45.8	9.3	35.6	9.5
1932	38.9	9.7	28.0	12.1
1929	47.6	10.0	36.3	1.5
1919	42.0	10.5	31.5	....
1914	37.6	11.4	26.2	....

PRICES

A moderate rise in food prices somewhat boosted the cost of living

	7 CONSUMERS' PRICES 1947–1949 = 100 *Index*	8 RETAIL PRICES 1935–1939 = 100 *Index*	9 WHOLESALE PRICES 1947–1949 = 100 *Index*	10 INDUSTRIAL STOCK PRICE AVERAGES *Dollars*
'57 II	119.7	215.1	117.2	497.00
'57 I	118.6	214.6	116.9	475.17
'56 IV	117.8	213.7	115.9	485.05
'56 III	117.0	213.1	114.7	505.49
'56 II	115.5	210.2	114.1	497.19
'56 I	114.6	207.8	112.4	484.31
1956	116.2	211.1	114.3	493.01
1955	114.5	208.0	110.7	442.70
1954	114.8	208.6	110.2	333.91
1953	114.4	209.1	110.1	275.96
1952	113.5	210.4	111.6	270.76
1951	111.0	206.8	114.8	257.64
1950	102.8	189.0	103.1	216.31
1949	101.8	187.7	99.2	179.48
1948	102.8	192.7	104.4	179.95
1947	95.5	180.1	96.4	177.58
1946	83.4	155.2	78.7	191.65
1939	59.4	99.0	50.1	142.66
1932	58.4	.....	42.8	64.57
1929	73.3	120.9	61.9	311.24
1919	74.0	.....	88.1	99.78
1914	42.9	.....	43.3	81.03

SALES

High volume in autos and auto supplies on both wholesale and retail levels accounted for some of the increase in total business sales

	21 FARM RECEIPTS *Billion $*	22 EXPORTS *Million $*	23 IMPORTS *Million $*	24 RETAIL SALES *Million $*	25 WHOLESALE SALES *Million $*	26 MANUFACTURING SALES *Million $*
'57 II	6.2	5,530	3,360	50,700	31,800	86,100
'57 I	6.5	5,422	3,241	44,586	30,250	86,484
'56 IV	10.0	5,271	3,051	52,003	33,420	86,824
'56 III	8.2	4,672	3,095	47,152	31,610	79,696
'56 II	6.0	4,916	3,107	47,577	31,050	82,927
'56 I	6.3	4,217	3,221	42,997	29,140	81,404
1956	30.5	19,076	12,474	189,729	125,220	330,851
1955	29.5	15,510	11,390	183,851	117,620	316,986
1954	30.0	15,059	10,205	169,135	109,291	287,707
1953	31.4	15,698	10,875	169,094	111,990	303,356
1952	32.8	15,177	10,714	162,353	112,325	276,548
1951	33.2	15,030	10,967	156,548	113,168	266,460
1950	28.7	10,275	8,852	143,689†	103,896	231,415
1949	28.1	12,051	6,622	130,721	88,252	196,997
1948	30.5	12,653	7,124	130,521	95,172	211,560
1947	30.0	14,430	5,756	119,604	87,263	191,010
1946	25.5	9,738	2,942	102,488	71,915	151,402
1939	8.6	3,177	2,318	41,042	26,244†	61,340
1932	4.7	1,611	1,323	25,013	.....	30,774
1929	11.3	5,241	4,399	48,459	37,814	70,262
1919	14.5	7,920	3,904	36,549	.....	60,509
1914	6.0	2,114	1,789	.....	.....	.....

INVENTORIES

Much of yearly increase in value of manufacturers' stocks due to higher replacement costs

	27 RETAIL INVENTORIES *Million $*	28 WHOLESALE INVENTORIES *Million $*	29 MANUFACTURING INVENTORIES *Million $*
'57 II	23,500	12,500	53,500
'57 I	24,340	13,140	52,626
'56 IV	22,400	13,310	51,572
'56 III	23,530	12,857	49,324
'56 II	23,510	12,370	49,295
'56 I	24,540	12,620	47,674
1956	22,400	13,310	51,572
1955	22,440	12,290	46,085
1954	22,090	11,562	44,017
1953	21,208	11,695	46,947
1952	20,234	11,310	44,442
1951	19,904	11,068	43,123
1950	18,699§	10,474	34,534§
1949	14,570	7,913§	29,038
1948	15,190	7,982	31,782
1947	13,372	7,613	29,032
1946	11,231	6,606	24,620
1939	5,285	3,075†	11,516
1932	.....	2,307	7,332
1929	7,298	4,024	12,775
1919	.....	.....	12,096
1914	.....	.....	.....

Footnotes

†Figures for this and prior dates are from another source and are not strictly comparable with later data.
‡Beginning in 1937 tax refunds are deducted from receipts and are not included among the expenditures.
Sources of the statistical data appear on page 29.

. . . A RECORD OF BUSINESS ACTIVITY

INCOME

Purchasing power was somewhat restricted by rise in consumer prices

11 WEEKLY HOURS Indus. Workers *Hours*	12 WEEKLY EARNINGS Indus. Workers *Dollars*	13 DISPOSABLE PERSONAL INCOME *Billion $*	14 DISPOSABLE INCOME Per Capita *1956 Dollars*	15 CORPORATE PROFITS AFTER TAXES *Billion $*	
39.8	81.80	299.7•	1,705	22.1•	II '57
40.2	82.34	295.5•	1,701	22.4•	I '57
40.7	82.83	294.0•	1,711	23.3•	IV '56
40.4	80.07	288.8•	1,701	20.8•	III '56
40.2	78.86	285.8•	1,713	21.6•	II '56
40.5	78.20	279.6•	1,697	22.1•	I '56
40.4	79.99	287.2	1,708	22.0	1956
40.7	76.52	270.2	1,660	21.5	1955
39.7	71.86	254.4	1,585	16.4	1954
40.5	71.69	250.2	1,592	16.7	1953
40.7	67.97	236.7	1,548	16.1	1952
40.7	64.77	226.1	1,534	18.7	1951
40.5	59.33	206.1	1,536	22.1	1950
39.2	54.92	188.2	1,439	15.8	1949
40.1	54.14	187.6	1,445	20.3	1948
40.4	49.97	169.0	1,425	18.2	1947
40.4	43.82	159.2	1,568	13.4	1946
37.7	23.86	70.4	1,053	5.0	1939
38.3	17.05†	48.7	776	−3.4	1932
44.2	25.03	83.1§	1,081§	8.3§	1929
46.3	22.08	63.5	949	5.7	1919
49.4	11.01	33.2	908	1.9	1914

PRODUCTION

Decline in industrial production was attributed to output reductions in durable goods

16 INDUSTRIAL PRODUCTION (PHYSICAL) *Index*	17 ELECTRIC POWER PRODUCTION *Billions kwh*	18 BUILDING PERMITS 120 Cities *Million $*	19 EXPENDITURES FOR PLANT & EQUIPMENT *Billion $*	20 GROSS NATIONAL PRODUCT *Billion $*	
143*	175.1	1,328	9.9	433.5•	II '57
146*	178.1	1,110	8.3	429.1•	I '57
146*	176.3	1,094	9.8	426.0•	IV '56
141*	169.5	1,379	8.9	416.7•	III '56
142*	166.6	1,296	8.9	410.8•	II '56
142*	170.1	1,057	7.5	405.2•	I '56
143	682.5	4,826	35.1	414.7•	1956
139	624.8	4,571	28.7	391.7	1955
125	544.6	4,143	26.8	360.7	1954
134	516.5	4,034	28.3	363.2	1953
124	463.1	3,523	26.5	345.2	1952
120	432.3	3,654	25.6	328.2	1951
112	388.7	4,466	20.6	285.1	1950
97	345.6	3,131	19.3	257.3	1949
104	336.8	3,111	22.1	257.3	1948
100	307.4	2,470	20.6	232.2	1947
90	269.6	2,089	14.8	209.2	1946
58	161.3	1,029	5.5	91.1	1939
31	99.4	336	2.6	58.5	1932
59	116.7	2,490	9.2	104.4§	1929
39	.....	1,181	....	77.9	1919
33	.....	735	....	38.5	1914

FEDERAL

Receipts were at record level in the first half of 1957

30 FEDERAL RECEIPTS *Million $*	31 FEDERAL SPENDING *Million $*	32 GROSS FEDERAL DEBT *Billion $*	
24,200	19,300	270.5	II '57
24,910	17,422	275.0	I '57
15,263	17,439	276.6	IV '56
16,783	16,362	274.3	III '56
25,267	17,791	272.8	II '56
24,572	15,623	276.3	I '56
68,563	66,258	276.6	1956
60,390	64,750	280.8	1955
64,655	67,772	271.3	1954
64,825	74,274	266.1	1953
61,393	65,400	259.1	1952
47,568	44,058	255.2	1951
36,495	39,617	257.4	1950
37,696	39,507	252.8	1949
41,488	33,069	252.3	1948
39,787	39,033	258.3	1947
39,772	64,448	269.4	1946
4,996‡	8,858‡	40.4	1939
1,924	4,659	19.5	1932
3,861	3,127	16.9	1929
5,085	18,448	25.5	1919
735	735	1.2	1914

FINANCE

Consumer credit expanded as installment sales of passenger cars rose noticeably in May and June

33 CONSUMER CREDIT Outstanding *Billion $*	34 LOANS OF COMMERCIAL BANKS *Billion $*	35 CURRENCY OUTSIDE OF BANKS *Million $*	36 DEMAND DEPOSITS ADJUSTED *Million $*	37 INTEREST ON BUSINESS LOANS *Per cent*	
42.2	92.2	28,600	105,400	4.43	II '57
40.5	91.0	27,400	105,200	4.38	I '57
41.9	90.3	28,335	111,391	4.38	IV '56
40.1	88.5	27,400	105,400	4.35	III '56
39.5	86.9	28,284	104,744	4.14	II '56
37.8	84.7	27,200	104,400	3.93	I '56
41.9	90.3	28,335	111,391	4.38	1956
38.6	82.6	28,285	109,914	3.93	1955
32.3	70.6	27,852	106,550	3.55	1954
31.2	67.6	28,091	102,481	3.69	1953
27.4	64.2	27,494	101,508	3.50	1952
22.6	57.7	26,315	98,234	3.10	1951
21.4	52.2	25,398	92,272	2.70	1950
17.3	43.0	25,415	85,570	2.70	1949
14.4	42.5	26,079	85,520	2.50	1948
11.6	38.1	26,476	87,121	2.10	1947
8.4	31.1	26,730	83,314	2.10	1946
7.2	17.2	6,401	29,793	2.10	1939
3.6	21.8	4,669	15,728	4.71	1932
6.4	35.7	3,557	22,809	5.83	1929
....	22.4	3,593	17,624	6.58	1919
....	13.2	1,533	10,082	....	1914

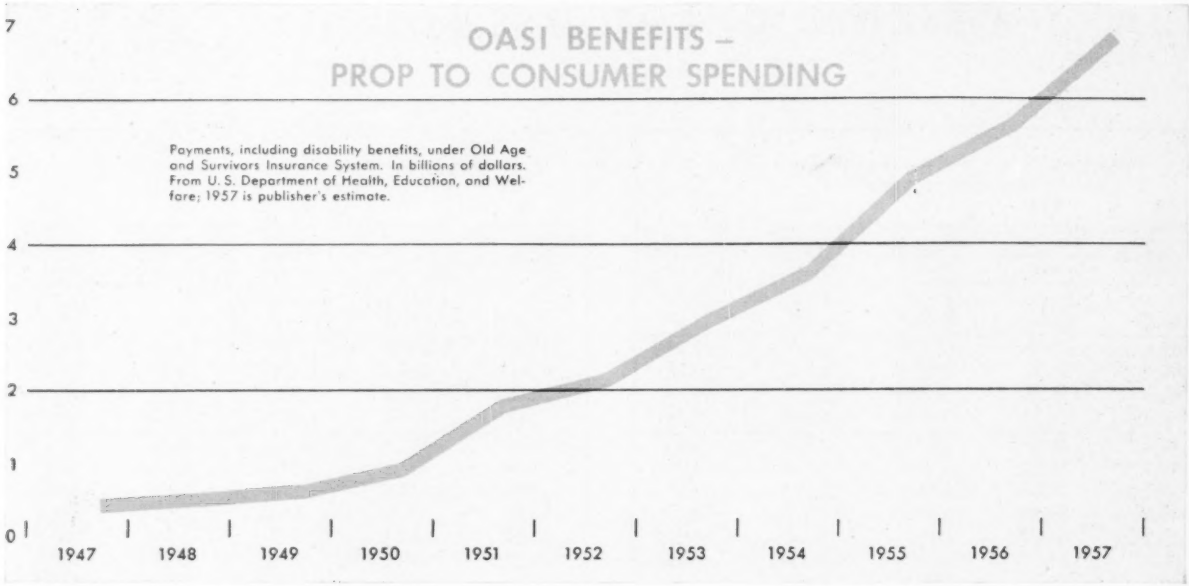
FAILURES

Tolls slackened, but remained above 1956

38 BUSINESS FAILURES *Number*	39 LIABILITIES OF FAILURE *Million $*	
3,459	161.6	II '57
3,630	175.3	I '57
3,139	140.2	IV '56
3,051	143.0	III '56
3,254	144.8	II '56
3,242	134.7	I '56
12,686	562.4	1956
10,969	449.3	1955
11,086	462.6	1954
8,862	394.2	1953
7,611	283.3	1952
8,058	259.4	1951
9,162	248.3	1950
9,246	308.1	1949
3,252	234.6	1948
3,476	204.6	1947
1,130	67.3	1946
14,768	182.5	1939
31,822	928.3	1932
22,909	483.3	1929
6,451	113.3	1919
18,280	357.9	1914

•Annual rate seasonally adjusted.
•Quarterly figures seasonally adjusted.

§Series revised from this date.
Second quarter figures for most series are based upon preliminary estimates and incomplete data.



Social Security benefits, including disability payments, have risen tenfold in the last decade, accounting for a continuously growing proportion of spendable income throughout this period; in 1956, this proportion was slightly higher than 2 per cent of disposable income.

In fact, should expansion of military spending run anywhere close to its average rate in that year, the assumed estimate would prove to be on the low side. Admittedly, the President's recent request to all agencies to limit fiscal 1958 spending to fiscal 1957 levels "to the extent feasible" may result in enough stretchout in purchases by the Armed Forces to hold outgo under this total, and perhaps even under the Administration's January forecast. Still, it seems rash to count on such an outcome. In any case, funds will not be a bottleneck. A backlog of unobligated appropriations exists, supplementals would be voted if necessary, and Congress now appears likely to approve all but a moderate fraction (ex-bookkeeping adjustments) of the appropriations originally sought by the President.

The direction of Federal purchases of nondefense goods and services is less easy to predict. Outlays for such items were close to rock bottom levels early this year and might rise on balance, despite cuts Congress has made in fiscal 1958 budget requests in some areas and despite efforts by the Administration to limit spending in others.

At lower government levels, finance remains a major headache. Despite the growing pressure of public needs, the projection puts the average rate of rise in purchases by states and municipalities below that of fiscal 1957. This reflects a significant allowance for the possibility that some state and local governments will be unable to find funds to take care of some of their programs in full, as well as for various problems hampering expansion of the highway program.

Heavy capital spending assured

The estimate for private investment likewise took account—adequately, it would seem—of the probable monetary position.

Looking first at business fixed investment, the latest comprehensive check, taken a few months ago, of nonfarmers' capital spending plans for the calendar years 1957-1960 suggests that expenditures will rise through the remainder of this year. It also shows that purchases already planned for 1958 are very close to the expected 1957 total. Since similar surveys in the past have usually shown actual outlays in a given year exceeding the previous Spring's plans by a large margin, a sharp departure from the historical pattern would be necessary to prevent purchases from trending upward at least through the early part of next year. In addition, a recent investigation came to the conclusion that the near-term outlook for agricultural equipment is very encouraging.

These probes into spending prospects seem to support the projection rather strongly. Moreover, upon analysis, recent trends in building contract awards and in sales, bookings, backlogs, and producers' expectations of new orders for equipment appear to point the same way on balance.

New orders for machinery and transportation equipment, it is true, were declining early this year. U. S. Department of Commerce data show that they have been running moderately below sales in recent months. But relative to shipments the over-all order backlog is still large in both areas. There is some evidence, too, that last Spring orders for producers' equipment alone (the Commerce figures include other things too) were still keeping up with deliveries, if not doing a little better. Finally, several surveys show that equipment producers expect both their sales and their order volume to rise significantly in the second half of this year. Indeed, the latest Commerce totals available in mid-July (for May 1957) indicate a sharp advance in bookings for both machinery and transportation equipment. This suggests that the expected upturn in new business may have occurred already.

For private nonresidential buildings, the picture is more difficult to assess, since public and private totals are lumped together in published F.W. Dodge data on con-

from order to invoice...

WRITTEN JUST ONCE

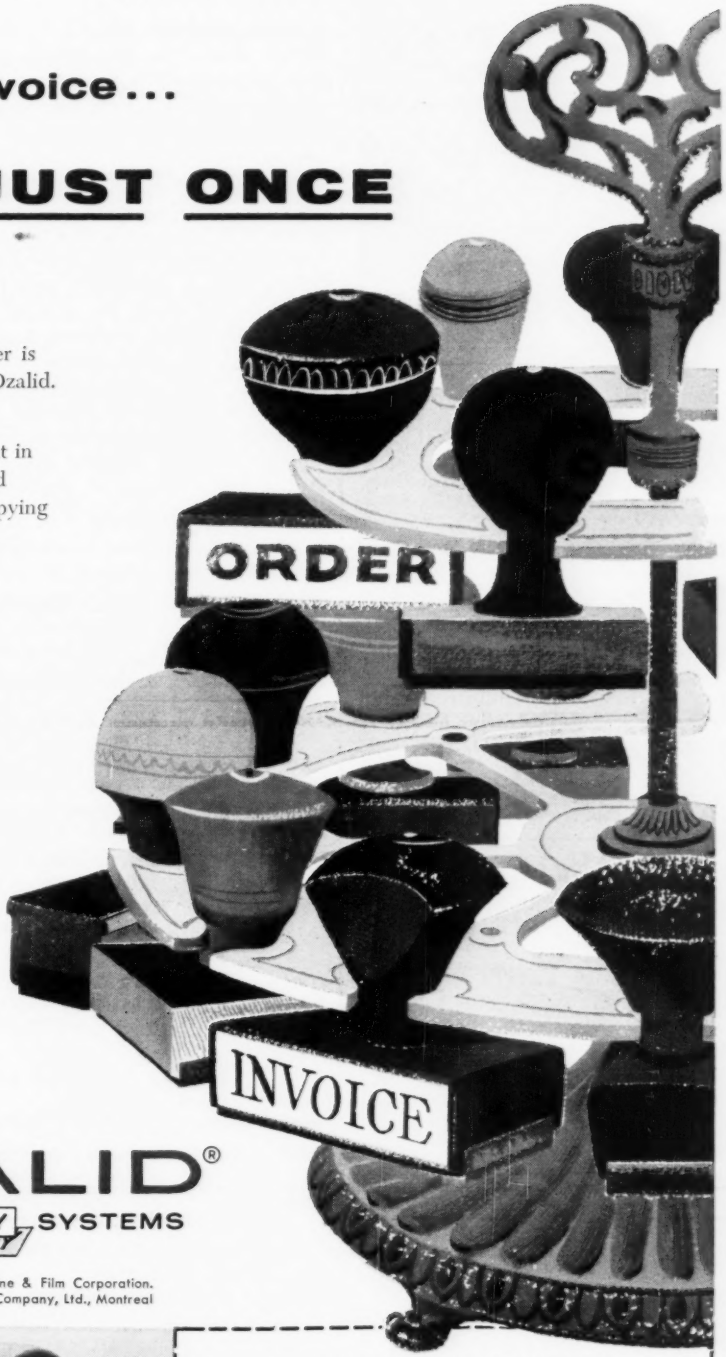
From first step to final record, all the paperwork you require to process an order is reproduced from *just one writing*—with Ozalid.

You start with an order filled out by your salesman or clerk. Ozalid copies, turned out in seconds, serve in order filling, shipping and billing. You end costly, repetitious handcopying and retyping... eliminate copy errors and proofreading... get shipments and bills out sooner... improve customer service.

Ozalid ends wasteful duplication of paperwork throughout your business. In every department, Ozalid replaces costly writing or typing with inexpensive *Direct Copying*.

Ozalid makes copies of anything written, printed, typed or drawn on any paper that transmits light—at the lowest cost per copy of any similar process. Actually, you pay less than a penny for a letter-size sheet of sensitized Ozalid paper.

For the full story, call your local Ozalid representative... or send coupon below for more information.



OZALID®

DIRECT COPY SYSTEMS

A Division of General Aniline & Film Corporation.
In Canada: Hughes Owens Company, Ltd., Montreal

Ozalid, Dept. C-8, Johnson City, N. Y.

Please send more information on how Ozalid *Direct Copying* can help us with our:

☐ Order-Invoicing ☐ Purchasing ☐ Accounting
☐ Production Control ☐ Receiving ☐ Engineering

Name _____

Position _____

Firm _____

Address _____

City _____ State _____

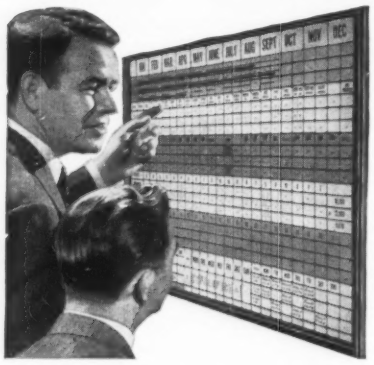
Easy-entry booster rollers, Multi-Stroke fast-lift operation, accelerator-type lowering pedal, Anti-kick-back Safety Handle, front wheel equalizer — these and other Weld-Bilt features promise long labor-saving service on your single or double pallet-moving operations. Check all the advantages — write for bulletin No. LT854.
For information on our complete line write us or our nearby representative.

"Weld-Bilt" PRODUCTS

Hydraulic Lift Tables and Trucks — Portable Elevators — Automatic Conveyor-lift Elevators — Conveyors — Skids — Special Equipment.

WEST BEND EQUIPMENT CORP.
MATERIALS HANDLING ENGINEERS
303 Water Street, West Bend, Wisconsin

You Get Things Done With Boardmaster Visual Control



☆ Gives Graphic Picture of Your Operations—Spotlighted by Color
☆ Facts at a glance—Saves Time, Saves Money, Prevents Errors
☆ Simple to operate — Type or Write on Cards, Snap in Grooves
☆ Ideal for Production, Traffic, Inventory, Scheduling, Sales, Etc.
☆ Made of Metal. Compact and Attractive. Over 150,000 in use.

Complete price **$49.50** including cards

FREE 24-PAGE BOOKLET NO. D-400 Without Obligation

Write for Your Copy Today

GRAPHIC SYSTEMS
55 West 42nd Street • New York 36, N. Y.

struction contract awards in the 48 States. However, the grand aggregate for nonhousing units from January through May 1957 appeared to be far enough above that for the comparable period of last year to insure that private as well as public contract values would exceed last year's volume—which looks to have been exceptionally high. Consequently, at least a moderate growth in value put in place for over-all private construction ex-housing seems probable for a good while. Declines in some types of commercial and industrial building will be more than offset by advances in other categories —notably public utilities and some of the major classes of institutional structures.

Inventory turnaround ahead

The behavior of inventory investment should likewise support near-term demand. Moderate reduction in the physical volume of stocks appears to have occurred last Winter. Preliminary totals indicate a modest rise in the Spring, but revisions to come could reduce these figures. A June survey by the National Association of Purchasing Agents, for example, indicated that over one-third of the respondents were reducing their stocks while fewer than one-seventh were adding to stocks. (Inventory *book values*, reflecting seasonal movements in volume as well as in replacement cost, decreased last quarter in wholesale and retail trade

BUSINESS SIGNPOSTS

1939 Average	1947 Average	Selected WEEKLY Indicators†	Latest Week	Previous Week	Year Ago
102	163	**STEEL INGOT PRODUCTION** Ten Thousand Tons (a)	208	203	42
25	49	**ELECTRIC POWER OUTPUT** Ten Million KW Hours (b)	123	120	111
76	121	**BITUMINOUS COAL MINED** Hundred Thousand Tons (c)	101	75	91
69	92	**AUTOMOBILE PRODUCTION** Thousand Cars and Trucks (d)	140	135	135
35	98	**DEPARTMENT STORE SALES** Index 1947–1949 = 100 (e)	104	94	99
5	13	**BANK CLEARINGS** Hundred Million Dollars (f)	112	115	111
284	67	**BUSINESS FAILURES** Number of Failures (f)	266	256	223

1939 Average	1947 Average	Selected MONTHLY Indicators‡	Latest Month	Previous Month	Year Ago
58	100	**INDUSTRIAL PRODUCTION** Index 1947–1949 = 100 (e)	143	143	141
58	95	**NONFARM COMMODITY PRICES** Index 1947–1949 = 100 (g)	125.2	125.2	121.5
37	100	**FARM COMMODITY PRICES** Index 1947–1949 = 100 (g)	90.9	89.5	91.2
59.4	95.5	**CONSUMERS' PRICE INDEX** Index 1947–1949 = 100 (g)	120.2	119.6	116.2
3.5	10.0	**RETAIL SALES** Billions of Dollars (h)	16.7	16.9	16.6
5.4	15.6	**MANUFACTURERS' SALES** Billions of Dollars (h)	28.6	28.6	27.8
45.8	58.0	**EMPLOYMENT** Millions of Persons (h)	66.5	65.2	66.5
72.9	190.5	**PERSONAL INCOME** Billions of Dollars, seasonally adjusted annual rate (h)	343.8	342.9	326.8
103	257	**BUILDING PERMIT VALUES** Millions of Dollars (f)	543.9	560.3	558.9

SOURCES: (a) Amer. Iron & Steel Inst.; (b) Edison Elect. Inst.; (c) U.S. Bureau of Mines; (d) *Automotive News;* (e) Federal Reserve Board; (f) DUN & BRADSTREET, INC.; (g) U.S. Bureau of Labor Statistics; (h) U.S. Department of Commerce. †WEEKLY INDICATORS: Steel data for the fourth week of July; sales for the second week; all others for third week. ‡MONTHLY INDICATORS: Manufacturers' sales for May, all others for June.

but were probably around their peak in manufacturing at mid-year. See Compass Points 27–29.)

Physical inventories may again be declining. Current and prospective strength in final purchases, however, coupled with the fact that stocks never reached very burdensome levels earlier, suggest that if so the drop-off will be reversed before many months. The money squeeze, of course, will temper any build-up.

Revival in housing

For the remainder of private investment, a virtual standoff is in prospect. Net foreign investment, up sharply for several months as a result of the Suez crisis, should decrease appreciably. This dip will be offset and perhaps outweighed, however, by a swingback in nonfarm residential construction. Housing starts, after having dropped to a seasonally adjusted annual rate of 933,000 in March, had rebounded to a rate of 970,000 by June and are doubtless now running even higher. Value put in place continued to slide off through May—reflecting, of course, the down-trend in starts last Autumn and Winter. It recovered slightly in June and by now is definitely moving higher once more.

Further *strong* improvement in construction of homes seems improbable, unless some relaxation of credit renders the 5 per cent ceiling rate and discount restriction on FHA-insured units more attractive to lenders. Nonetheless, the trend will be upward. As phenomenally low vacancy ratios and the small backlog of unsold houses attest, recent building rates are inadequate to meet current needs. And despite the money pinch, step-ups in some areas may be facilitated by new Federal legislation permitting liberalization of down-payments on FHA houses, and providing large sums to enable the FNMA to expand its operations in the secondary mortgage market and acquire mortgages on so-called special assistance housing. Not only will starts advance at a moderate rate, but average value per unit will rise and home-owners will continue to spend more for additions and alterations.

Consumers to keep buying

Finally, consumer spending should rise uninterruptedly. There will be

Regional Highlights

From January to June of this year the aggregate value of building permits rose slightly over 1 per cent above the comparable 1956 period. Sparked by huge and rapidly expanding activity in Los Angeles, the Pacific region reported the most noticeable increase, 8.4 per cent.

In the first half of 1957, failures ran above the comparable 1956 rates in eight of the nine major geographic regions, both in number and on a dollar liability basis. While the number declined in New England, only in the East South Central States were liabilities below last year.

Year-to-year gains in new business incorporations occurred in the South Atlantic and Mountain regions during the first five months of 1957, while the other seven regions reported declines. In the nation as a whole the level was about 6 per cent below last year's.

Department store sales in the United States for the first half of 1957 exceeded those of the similar period last year by 2 per cent. Volume declined 1 per cent in Cleveland but rose 4 per cent in New York and Richmond.

Your Checklist for Sales..

Take advantage of all marketing essentials and your program becomes more effective than ever before. One essential often overlooked is the loose-leaf system of cataloging as perfected by Heinn. With Heinn Loose-Leaf Binders and Colorific Indexes, your salesmen *and* customers have quick access to current facts about products, prices and sales policies. Orders come faster and your salesmen make more calls per day. Your total sales volume rises.

Hundreds of America's leading manufacturers and wholesalers keep placing *repeat orders* for Heinn Loose-Leaf Binders. They *know* the value of Heinn products to their own marketing operations. And they accept no substitutes.

Why should you?

Clip and mail this coupon:

THE HEINN COMPANY, 310 W. Florida St., Milwaukee 4, Wis.
We are listing quantities of items on which we'd like complete information:

..... Salesmen's Catalog Binders
..... Dealer Catalog Binders
..... Manual Covers (Sales, Service, Parts)
..... Price Books
..... Colorific Indexes

☐ Send "Facts at Your Fingertips," Heinn's new booklet for the catalog planner.
☐ Have your representative call.

Name.....
Firm.....
Address.....
City..... State.....

Whether your business needs $25,000 or millions . . . whether you need it for months or years . . . whether you are in California or Carolina . . . Commercial Credit offers a quick, proven* solution to your problem

Experience has proven that COMMERCIAL CREDIT's Commercial Financing Plan for manufacturers and wholesalers usually provides more cash than is available from other sources. Also COMMERCIAL CREDIT cash is available continuously (if needed) without negotiation for renewal. Money is normally ready for use 3 to 5 days after first contact. There is no interference with management. There are no preliminary costs. There are no long-term fixed commitments. The cost is minimized because you pay only for cash actually used as your need varies and the one reasonable charge is tax deductible. For additional facts, contact the nearest COMMERCIAL CREDIT CORPORATION office listed here. Just say, "Send me more information about the plan described in Dun's Review & Modern Industry."

Consult COMMERCIAL CREDIT

Capital and Surplus over $200,000,000

Commercial Credit Building, Baltimore 2
222 W. Adams Street, Chicago 6
722 S. Spring Street, Los Angeles 14
100 E. 42nd Street, New York 17
112 Pine Street, San Francisco 6

***COMMERCIAL CREDIT COMPANY subsidiaries, during each of the last several years, advanced over one billion dollars to manufacturers and wholesalers to supplement cash working capital. The 1956 total volume of finance subsidiaries amounted to over three billion dollars.**

no real surge in personal expenditures unless 1958 auto models prove tempting enough (or fears of an auto strike become strong enough) to prompt a buying splurge—assuming sufficient credit is available to support one. But such stimuli are not necessary to insure some improvement in car sales or a steady rise in over-all consumer outlays. In any case, spendable income will be increased by secular growth in transfer payments, especially tax-free OASI benefits (see chart, p. 24), plus the rise in "keep-home" income generated by expansion in over-all output. At the same time, the share of income saved should run little if at all above its fiscal 1957 level. There are several reasons for this—not least of them the pull exerted by population rise, which has recently hit a rate of more than 3 million a year (Compass Point 1.) Heavier outlays for services and non-durables will account for the bulk of the increase in purchases, but some net rise in buying of consumer durables is also likely to occur.

Prices—production—profits

Although the foregoing pattern promises to support roughly the same dollar rise in Gross National Product as took place in fiscal 1957, it will in all likelihood be accompanied by a somewhat different relationship among physical production, prices, and business earnings. A smaller share of the over-all advance will be due to inflation, and a larger share to expansion of real output, than during the preceding four quarters. The FRB index of industrial output should reach 150 by late next Winter, if not before, and the physical flow of services will grow. However, with prices likely to rise less, relative to the rise of money labor costs, profit margins will narrow unless the gain in productivity exceeds that scored last year. Any squeeze probably will not go far enough to push total earnings below the fiscal 1957 rate, but it appears improbable that the pretax level will exceed $44 billion to $45 billion (more than $22

This is a report prepared in the Business Economics Department, Dun & Bradstreet, Inc., by Edwin B. George, Director of Economics, and Robert J. Landry, Economist.

billion post-tax) for the fiscal year.

In summary, near-term prospects appear bright. Apart from net foreign investment, the areas that have been strong over the past year promise to remain so, while most of those which have been weak—buying for inventory, housing, autos, and certain other consumer hard goods—should strengthen. While the existing degree of credit restraint may slow down the rise in total spending, it would appear that only strait-jacket measures could halt or reverse it. And should the exigencies of Treasury financing compel significant easing of credit, dollar spending might well exceed projected rates. On the basis of reasonable expectations concerning stabilization policies, fiscal 1958 still looks like a big year.

Sources pages 22 and 23

CENSUS 1. POPULATION: *U.S. Bureau of the Census;* 2. NAMES IN REFERENCE BOOK: *Dun & Bradstreet, Inc.*

EMPLOYMENT 3. CIVILIAN; 4. AGRICULTURAL; 5. NONAGRICULTURAL; 6. UNEMPLOYMENT: *U.S. Bureau of the Census*

PRICES 7. CONSUMERS' PRICES: *U.S. Bureau of Labor Statistics;* 8. RETAIL PRICES: *U. S. Office of Business Economics;* 9. WHOLESALE PRICES: *U.S. Bureau of Labor Statistics;* 10. INDUSTRIAL STOCK PRICE AVERAGES: *Dow Jones & Company*

INCOME 11. WEEKLY HOURS; 12. WEEKLY EARNINGS OF INDUSTRIAL WORKERS: *U.S. Bureau of Labor Statistics;* 13, 14: DISPOSABLE INCOME; 15. CORPORATE PROFITS AFTER TAXES: *U.S. Office of Business Economics*

PRODUCTION 16. INDUSTRIAL PRODUCTION (PHYSICAL): *Federal Reserve Board;* 17. ELECTRIC POWER PRODUCTION: *Federal Power Commission;* 18. BUILDING PERMITS, 120 CITIES: *Dun & Bradstreet, Inc.;* 19. EXPENDITURES FOR PLANT AND EQUIPMENT: *U.S. Department of Commerce and Securities & Exchange Commission;* 20. GROSS NATIONAL PRODUCT: *U.S. Office of Business Economics*

SALES 21. FARM INCOME: *U.S. Bureau of Agricultural Economics;* 22. EXPORTS; 23. IMPORTS: *U.S. Bureau of the Census;* 24. RETAIL SALES; 25. WHOLESALE SALES; 26. MANUFACTURING SALES: *U.S. Office of Business Economics*

INVENTORIES 27. RETAIL; 28. WHOLESALE; 29. MANUFACTURING: *U.S. Office of Business Economics*

FEDERAL 30. RECEIPTS; 31. EXPENDITURES; 32. GROSS FEDERAL DEBT: *U.S. Treasury Department*

FINANCE 33. CONSUMER CREDIT; 34. LOANS OF COMMERCIAL BANKS; 35. CURRENCY OUTSIDE OF BANKS; 36. DEMAND DEPOSITS ADJUSTED; 37. COMMERCIAL LOAN RATES: *Federal Reserve Board*

FAILURES 38. BUSINESS FAILURES; 39. LIABILITIES: *Dun & Bradstreet, Inc.*

In management, too...

Borg-Warner plans for the future

Like any team, a company's management is strengthened by the depth of its reserves. Accordingly, Borg-Warner several years ago initiated a program of building Management in Depth—to assure a continuing supply of capable executive manpower at all supervisory levels.

Basis of this activity is an intensive executive training program involving concentrated study of all company operations, and such management problems as maintaining a sound corporate structure, new product development, cost reduction, labor relations, communications, and similar subjects.

That the program is successful is evidenced by the fact that during the past few years many young but highly qualified men have been advanced to more important executive positions, and their places capably filled by others trained to succeed them.

Presently pursuing this program with increased effectiveness, Borg-Warner plans for the future confident that its management structure will continue strong.

DESIGN IT BETTER ENGINEERING B-W PRODUCTION *MAKE IT BETTER*

BORG-WARNER®

310 S. MICHIGAN AVENUE • CHICAGO 4, ILLINOIS

This huge concrete dome covers the new National Guard Armory at Lawton, Okla. To protect the porous masonry against weather, wind and abrasion, a white coating based on BAKELITE Brand Vinyl Resins was sprayed over the entire surface of the dome. Applied at a pressure of 100 pounds per sq. in., the coating penetrates into the pores of the 4-inch thick concrete. Additional coats build up a smooth surface that reflects the sun's rays and helps to maintain cool underroof temperatures. It's a tough, easily applied coating that resists weather extremes and hard usage... and equally applicable on all other types of masonry construction.

At International Airport (Idlewild), N. Y. C., the new control tower, administration and passenger building have a new kind of expansion joint, or waterstop, trade-marked "Durajoint." It's a ridged strip extruded from BAKELITE elastomeric Vinyl Plastic, used between sections of concrete floors or walls. The diagram shows how the strips are cast into the slabs of concrete. They absorb vibration, and allow for expansion and contraction of the masonry sections, and prevent water from seeping through the joints. The tough BAKELITE Vinyl Plastic offers excellent resistance to weathering and fungus growth, and is unaffected by chlorine, sea water, or by the acids and alkalies present in concrete.

BAKELITE Plastics make building news with

Faster and better construction methods

A plastic blanket helps build a highway! Big rolls of film made of BAKELITE Brand Polyethylene are used as a "curing blanket" for newly-laid concrete on a Minnesota trunk highway. The blanket holds the moisture in the concrete and (tinted white) reflects sunlight and cuts down heat absorption. This allows the concrete to set properly. The film is easy to lay. Twenty pounds of film covers 1000 feet of highway. It resists chemicals, and unlike most other blanket materials, can be re-used . . . a big factor in its economy.

Excluding moisture after a concrete floor has been laid is as important as retaining moisture while the concrete sets. Film made of BAKELITE Brand Polyethylene does both jobs. Here, it has been laid on the foundation base and the concrete floor poured on top. It keeps the moisture in the concrete from seeping into the ground, and when the building is completed will keep moisture from coming in through the foundation. (It's also laid on top during the "curing" process in the same way as described above). Polyethylene film also serves as temporary glazing, as moisture and dust barriers in floors and walls and, of course, for packaging products of just about every kind.

Modern concrete construction puts the unique properties of plastics to work

Just as there are many different ways in which plastics help make stronger, longer-lasting, better looking, more economical construction today, there are many different plastics to choose from at Bakelite Company. There are vinyls, epoxies, polyethylenes, phenolics, polyesters, styrenes, and impact styrenes. Each one provides properties and characteristics ideally suited to the many jobs it does in every kind of business and industry. And they all add up to the greatest variety of plastics at one source, backed by the broadest experience and largest facilities in the industry.

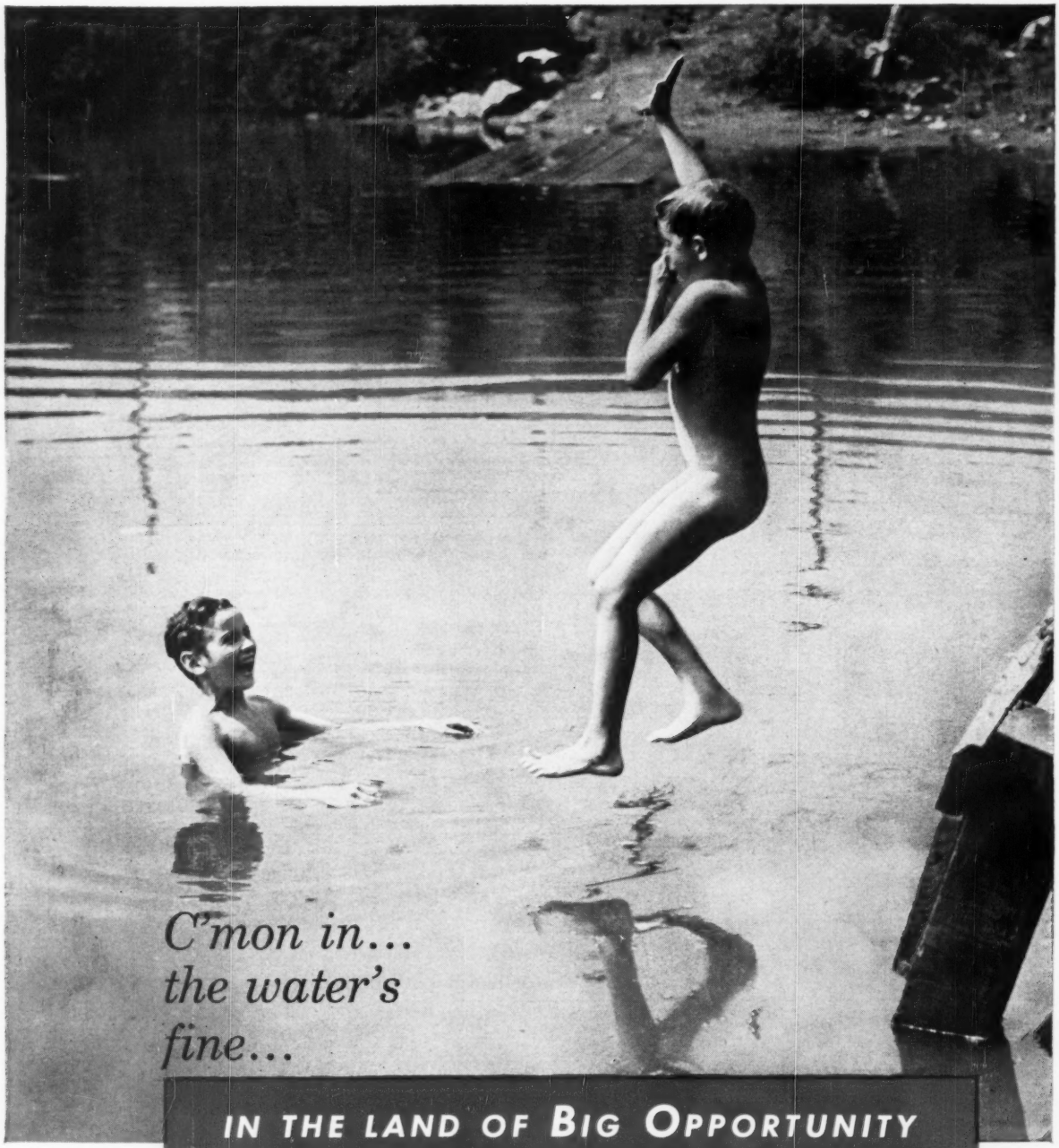
DID YOU KNOW: Plywood panels used for concrete forms have a coating based on BAKELITE Brand Phenolic Resins, sealing the porous wood against moisture, and filling the grain so that masonry has a smoother surface.

BAKELITE
BRAND
PLASTICS

UNION CARBIDE

BAKELITE COMPANY, *Division of Union Carbide Corporation,* 30 East 42nd Street, New York 17, N. Y.

The terms BAKELITE and UNION CARBIDE are registered trade-marks of UCC.



IN THE LAND OF BIG OPPORTUNITY

Nature blessed the B&O area with rivers and lakes and an ocean! B&O has the WATER... and the *data* you need... *Let a B&O man help you plan!*

PHONE OR WRITE:

T. G. GORDON, Industrial Agent
BALTIMORE 1—LExington 9-0400

G. E. FERENCE, Ind. Development Agt.
NEW YORK 4—Digby 4-1600

A. C. TODD, Industrial Agent
CINCINNATI 2—DUnbar 1-2900

FIELDING H. LEWIS, Industrial Agent
PITTSBURGH 22—COurt 1-6220

W. E. OLIVER, Industrial Agent
CHICAGO 7—WAbash 2-2211

B&O BALTIMORE & OHIO RAILROAD

CONSTANTLY *DOING THINGS* — BETTER!

BUSINESS FAILURES

FOLLOWING the usual seasonal pattern, business failures declined in June. At 1,084, the number was 10 per cent below the May total, and the lowest so far this year. Liabilities, at $51.5 million, were down also, but by a smaller figure—2 per cent.

For the first time in eighteen months, fewer casualties occurred than in the comparable period of the preceding year. However, the ratio of failures to the total listed business population remained slightly above a year ago, according to DUN'S FAILURE INDEX, which extends monthly tolls to an annual basis and adjusts for seasonal fluctuations. Concerns failed at a rate of 50 per 10,000 listed in the DUN & BRADSTREET *Reference Book*, compared with 49 in June 1956. While this rate was the highest for any June since 1941, it was well below the 64 per 10,000 in prewar 1940.

Current liabilities were lower than in May, but the level was 20 per cent higher than in June of last year. The most noticeable year-to-year rise occurred among concerns with liabilities in excess of $100,000. There was a moderate increase over last year in failures in the $5,000 to $25,000 group.

Failures dropped below May figures in all trade and industry groups except commercial service. Manufacturing and retail tolls fell to the lowest levels in six months, and casualties in the construction industry hit a ten-month low. Among manufacturing industries, a marked decline in machinery and textiles-apparel failures offset increases in iron and steel casualties. The sharpest decrease in wholesaling occurred among dealers of scrap metals and waste materials.

The year-to-year picture was less favorable for some groups. Although failures in manufacturing and wholesaling (except building materials) decreased, retail, construction, and service failures held even with comparable 1956 levels. In retailing the only noticeable decreases from a year ago occurred among apparel and drug stores.

Six of the nine major geographic regions reported declines between May and June, with tolls in Middle Atlantic, East, and West North Central States falling to the lowest levels this year.

FAILURES BY DIVISION OF INDUSTRY

(Current liabilities in millions of dollars)	Number 6 Months 1957	1956	Liabilities 6 months 1957	1956
MINING, MANUFACTURING	1209	1249	111.4	104.0
Mining—Coal, Oil, Misc.	33	18	6.1	8.9
Food and Kindred Products	94	104	6.4	6.4
Textile Products, Apparel	261	320	17.1	21.5
Lumber, Lumber Products	229	207	13.9	13.2
Paper, Printing, Publishing	68	55	4.0	2.5
Chemicals, Allied Products	27	31	2.3	11.0
Leather, Leather Products	36	53	4.3	3.3
Stone, Clay, Glass Products	33	20	1.6	2.5
Iron, Steel and Products	56	70	22.1	6.5
Machinery	133	151	14.0	18.4
Transportation Equipment	32	30	3.0	2.6
Miscellaneous	207	190	16.7	12.3
WHOLESALE TRADE	660	661	43.1	32.0
Food and Farm Products	155	144	11.3	5.6
Apparel	26	33	2.0	1.7
Dry Goods	16	23	0.6	0.7
Lumber, Bldg. Mats., Hdwre.	78	86	4.7	5.5
Chemicals and Drugs	27	21	1.4	0.5
Motor Vehicles, Equipment	35	34	1.7	1.3
Miscellaneous	323	320	21.5	16.7
RETAIL TRADE	3585	3207	99.9	78.9
Food and Liquor	602	528	12.2	8.1
General Merchandise	153	138	6.9	6.1
Apparel and Accessories	603	630	12.0	12.5
Furniture, Furnishings	533	406	21.2	13.4
Lumber, Bldg. Mats., Hdwre.	242	187	7.2	6.2
Automotive Group	421	366	10.9	12.7
Eating, Drinking Places	641	560	15.4	11.6
Drug Stores	78	80	2.3	2.0
Miscellaneous	312	312	11.9	6.3
CONSTRUCTION	1079	865	59.5	47.6
General Bldg. Contractors	422	332	33.3	25.1
Building Subcontractors	587	483	20.0	20.0
Other Contractors	70	50	6.2	2.5
COMMERCIAL SERVICE	556	514	22.6	17.0
TOTAL UNITED STATES	7089	6496	336.4	279.5

Liabilities are rounded to the nearest million; they do not necessarily add to totals.

THE FAILURE RECORD

	June 1957	May 1957	June 1956	% Chg.†
DUN'S FAILURE INDEX*				
Unadjusted	49.5	52.6	48.7	+2.0
Adjusted, seasonally	50.0	50.1	49.2	+2.0
NUMBER OF FAILURES	1084	1200	1105	—2.0
NUMBER BY SIZE AND DEBT				
Under $5,000	169	192	193	—12.0
$5,000–$25,000	521	574	505	+3.0
$25,000–$100,000	298	303	322	—7.0
Over $100,000	96	131	85	+13.0
NUMBER BY INDUSTRY GROUPS				
Manufacturing	179	205	183	—2.0
Wholesale Trade	95	132	115	—17.0
Retail Trade	553	600	551	+0.4
Construction	164	181	163	+1.0
Commercial Service	93	82	93	0
LIABILITIES (in thousands)				
CURRENT	$51,454	$52,552	$43,013	+20.0
TOTAL	51,491	54,925	43,293	+19.0

*Apparent annual failures per 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book*.

†Per cent change, June 1957 from June 1956.

BUSINESS FAILURES *include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court.*

CURRENT LIABILITIES, *as used in The Failure Record, have a special meaning; they include all accounts and notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account.*

27 Styles and sizes to choose from—fully guaranteed. Write today.

MILWAUKEE DUSTLESS BRUSH CO.
530 N. 22nd St., Milwaukee 3, Wis.

ACME VISIBLE
VISUAL CONTROL PANELS

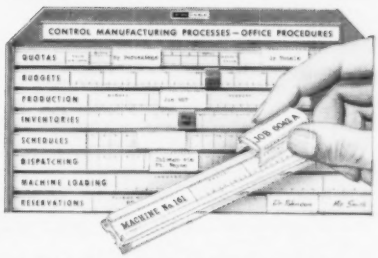


Chart Action, Indicate Trends, Permit Comparison, Organize Facts for Analysis and Decision.

Complete flexibility with limitless signalling and charting possibilities . . . Easily adapted to your individual records.

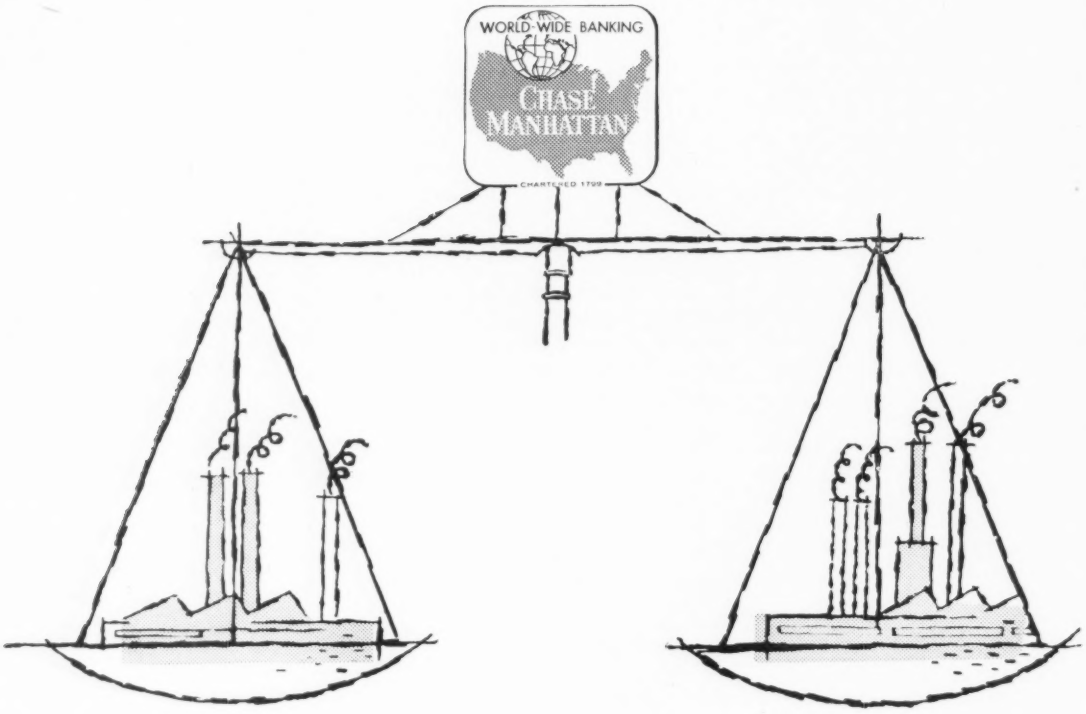
Lightweight panels contain clear plastic tubes which are individually removable and may be shifted from one position to another . . . Clarity of tube provides full legibility of contents.

Ask the man from Acme for examples.

ACME VISIBLE RECORDS, INC., Crozet, Virginia

☐ Send us more facts on Visual Control Panels
☐ We are interested in Acme Visible equipment for _____ records. B-857

Company _____ Attention _____
Address _____
City _____ Zone _____ State _____



Chase Manhattan can help you

weigh the facts about business

From vantage points in key cities all over the world, Chase Manhattan continuously gathers and assesses pertinent business facts, figures and trends.

Because this information originates *on the spot* and is supplied by a leading local bank with which Chase Manhattan has reciprocal arrangements, it is characterized by accuracy, thoroughness and up-to-dateness.

If you are an importer, exporter or businessman with interests in any part of the world,

"Why don't you talk to the people at Chase Manhattan?"

THE

CHASE MANHATTAN BANK

HEAD OFFICE: 18 Pine Street, New York 15, N. Y.

Member Federal Deposit Insurance Corporation

OVERSEAS BRANCHES
London
Paris
Frankfurt/Main
Beirut
Tokyo
Osaka
Havana
Marianao
San Juan, P.R.
Santurce
Rio Piedras
Panama
Colon
David
Cristobal
Balboa

Offices of Representatives:
Washington, D.C.
Bombay
Buenos Aires
Caracas
Continental Europe (Paris)
Mexico, D.F.
Rome

HIGHLIGHTS *and sidelights*

comment by

Hanesta R. Gardner

The fourth state of matter

To most people, *plasma* is something that's used for transfusions. But to the atomic physicist it's a gas—a strange kind of gas in which the molecules have completely disintegrated and even the atoms have broken down so that atomic nuclei are separated from their electrons.

Plasmas are not something normally encountered on earth. But they can be created in the presence of intense heat, and they are extremely important, because it is under the conditions that create plasmas that atomic fusion—the thermonuclear reaction of the hydrogen bomb—takes place. The ability of scientists to create and control plasmas is, then, a key to the controlled thermonuclear reaction that promises a new source of energy for the future.

Real progress is being made in this area. GE reports that, using a water-stabilized arc, scientists have achieved temperatures of 25,660° F (more than twice the temperature of the sun's surface), and, with an air-stabilized arc which they are now developing, they hope to go still higher.

They're a long way yet from the temperature required for a thermonuclear reaction to take place, and even further from the goal of controlled "hydrogen power." But their research is well worth watching.

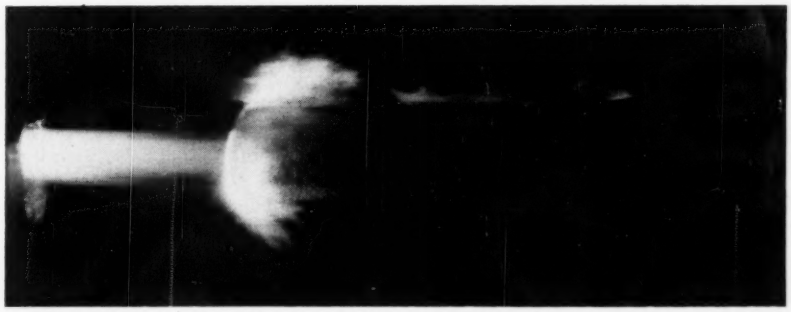
The management that measured from memories

Quoted below is one of five *Fables on Business Investment Policy* prepared by the Machinery & Allied Products Institute. We think you'll enjoy it. Italics and "morals" are MAPI's.

One day a visitor called on the president of the XYZ Company. "I represent Cost Exterminators Inc.," he announced. "We are professional cost savers, and we believe we can be of service to your organization. Our proposition is this: We will put a task force in your plant. It will make a continuing study of all phases of the operation. If it is unable to develop savings, it will not cost you a cent. If it does develop them, we will take half of the savings as our compensation.

"You may be wondering," the visitor went on, "what happens if some of these savings require additional investment. In that case you are completely protected. Our contract provides that the savings to be shared between us are figured *after* allowance both for depreciation and for a 10 per cent return on investment. You may wonder also who determines the *amount* of savings in any particular case. Here again you are protected. If we cannot agree on the amount, it is settled by arbitration.

"You see," he concluded, "here is a



Plasma jet creates an atomic vapor more than twice as hot as the surface of the sun. Jets like this can supplement solar furnace and shock tunnels now used for high-temperature research. This photograph was taken at General Electric's Aerosciences Laboratory.

You can't shoot quail with a "POP" gun!

BUT ONE MACHINE WILL DO ALL YOUR COPYING

hunter

photo-copyists

Copy Any Mark On Any Paper

No job is too tough for the Hunter Hi-Speed Heccokwik photo-copyist. Print, typewriting, handwriting, drawings, photographs—they're all the same. Simply insert the original and Hi-Speed makes the copy—black, clear, sharply-defined.

And with Hi-Speed you get a full, finished dry copy in 20 seconds! No mistakes! No erasures! Works on any desk in any light. No darkroom or chemicals. Anyone can operate it.

Hi-Speed and its papers are American made—the supply guaranteed. Hunter's revolutionary new development, Auto-Feed, is standard equipment with Hi-Speed, and makes photo-copying practically automatic and foolproof.

All we ask is—let us demonstrate in your office—on your work to prove that Hi-Speed is the machine for you!

CLIP TO YOUR LETTERHEAD:

SIMPLIFIED HUNTER PHOTO PRODUCTS REPRODUCTION Copyist

PIONEER IN PHOTO-COPYING

Hunter Photo-Copyist, Inc.
48 Spencer St., Syracuse, N. Y.
Gentlemen:
I want the Hunter Hi-Speed demonstrated in my office.

TELETYPE celebrates 50 years of NEW ideas!

EARLY TELETYPEWRITER

TELETYPE MODEL 28 PRINTER

A new idea—the first really practical telegraph printer—put the company now known as the Teletype Corporation in business in 1907. And—since we have stressed research from the beginning—new ideas have been coming from our laboratories ever since.

Today, equipment made by Teletype flashes news, messages, orders, reports, reservations . . . classifies freight cars . . . coordinates industrial production lines. It provides a "conveyor system" for channeling complex raw data to computing centers thousands of miles away . . . transmits and reproduces text and punched tape for office automation . . . and simplifies the handling of many other modern "chores."

Ideas like these may speed *your* operation, cut *your* paperwork load. For more information, contact your local telephone or telegraph company. Also send for our booklet, "The ABC's of Teletype Equipment." Write to Teletype Corporation, Dept. D8, 4100 Fullerton Avenue, Chicago 39, Illinois.

1957 Golden Anniversary Year TELETYPE®

TELETYPE CORPORATION
SUBSIDIARY OF
Western Electric Company
INCORPORATED

proposition where you can't lose. If we don't save you money, it costs you nothing. If we do, you are a net gainer by one half of everything we save. You are free at all times to develop whatever savings you can with your own personnel. . . . All we ask is one half of what we ourselves produce."

This sounded so good that the president promptly submitted the proposition to his board of directors, which voted unanimously to sign a 10-year contract. Shortly thereafter the task force was installed in the plant and the game of cost saving began.

The first year the task force developed annual savings of $1,000,000 and the company paid Cost Exterminators $500,000. The second year the new savings came to $2,000,000 and the check to the consulting firm was $1,500,000 (the savings of the first year, of course, continued, in addition to the new savings). By the time the 10-year contract expired, the task force had effected annual savings totaling $30,000,000 and Cost Exterminators was drawing down $15,000,000 a year.

By this time also the management of the XYZ Company had become thoroughly baffled. The company's half of the cost savings produced by the task force didn't seem to show up in the profits figures. In fact, profits had been declining under the arrangement. So the board appointed a task force of its own to find out why.

What it found out was this: The company's costs had indeed been reduced *as compared with where they were when the savings were effected*, but they had been rising *as compared with the costs of competitors.* Competitors also had been improving methods and facilities over the 10-year period. In fact, they had borrowed most of the advances made by the XYZ Company, while initiating others of their own. But they were not saddled with the $15,000,000 a year the company was paying Cost Exterminators. The payment of this fee had put the company's total costs out of line, and was principally responsible for the deterioration of its profit position.

Thus what appeared at the outset to be a bonanza had turned out to be a liability. To make matters worse, it was the opinion of counsel that since the cost savings accomplished

by the management firm would go on as long as the company survived, the company was bound to continue the $15,000,000 annual payment for past savings even though the contract was not renewed!

The morals:

To the extent that you pay for cost saving, you don't get it.

What you have to beat are not your own costs of yesterday, but your competitors' costs of today.

Babies that work

The miniature die castings—tiny shears, pliers, jack knives, and nutcrackers that really work—originally developed to show the possibilities of the *Intercast* process (see September 1956, page 78) can now be purchased for use as sales promotion items—or just for fun. The process itself has many industrial applications. It is a method for producing—in one die closing—items that would normally have to be made as assemblies. But the miniatures proved so popular that Gries Reproducer Corp., 125 Beechwood Avenue, New Rochelle, N.Y., now makes them as part of its regular product line and sells them at prices ranging from $8 to $15 a thousand, depending on quantity ordered.

They want "extras"

A tip to product designers comes from the automakers.

According to Lee F. Desmond of Dodge, "Mechanical aids to safety, comfort, and convenience are being demanded by 1957 car-buyers at a rate eclipsing all previous records."

In 1954, 14 per cent of the car-buyers demanded power steering, and 3 per cent took power brakes. So far this year, the percentages are 46 and 26. Radios have gone from 39 to 56 per cent and heaters from 78 to 96. Whitewall tires are up from 48 per cent to a whopping 82 per cent.

It looks as though the built-up, rather than the stripped-down, product is the one most likely to succeed.

Construction by remote control

That tractor in the background doesn't have any operator, and it doesn't need one. The control unit shown in the foreground gives it all the instruction it needs. Mounted in a jeep or even a helicopter, the control unit, which is designed to operate with a standard military radio transmitter, can start or stop the machine, operate in forward or reverse, and manipulate the dozer blade up and down. Engineers at the Army Research and Development Laboratory (Ft. Belvoir) who built the unit believe it's the first of its kind in the construction field, and point out that it may have industrial applications—fighting fuel storage fires, for instance. (The Army, of course, is testing it for possible use in combat areas and radioactive zones.) The tractor itself is a *Tournadozer*, built by LeTourneau-Westinghouse, and containing all of the standard features.

in they go for SAFE TRAVEL

Built-In POCKET
carries I.D.P. Tape as part of your
LITHOSTRIP or LITHOSET
POCKET FORM

Smart? You bet! *Simple?* Take a look! Perfect transportation keeps your important I.D.P. tape safe and permanently identified in the "mother form" unit.

PREVENT *lost, mis-filed or damaged tapes.*

SAVE *costly filing and finding time.*

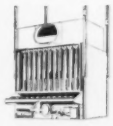
We'll make the pocket fit I.D.P. TAPE *or* PUNCHED CARDS . . . on the back of *any* copy in your Continuous or Unit Form sets.

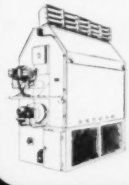
FREE POCKET FORM SAMPLES ON REQUEST.

We engineer many types of office forms. CONSULT US.

AMERICAN Lithofold Corporation
500 BITTNER ST. ST. LOUIS 15, MO.

modern heating for business and industry





Reznor direct-fired unit heaters offer the modern solution to the problems of heating commercial and industrial buildings. They cost less to install, less to operate and require practically no maintenance. With suspended, duct and free-standing types in all appropriate sizes from 25,000 to 2,000,000 BTU, the Reznor line includes equipment which is exactly right for *your* heating job.

Look for Reznor under "Heaters-Unit" in the Yellow Pages

REZNOR
WORLD'S LARGEST-SELLING DIRECT-FIRED UNIT HEATERS

Reznor Mfg. Co., 80 Union St., Mercer, Pa.

Change to New **Westinghouse Mercury Lamps...** get up to **30% more light** on work areas

More Westinghouse Job-Tailored Mercury Lamps are in use today than all other brands combined

Not only does Westinghouse make and sell more kinds and types of Mercury Lamps than anyone else, their pioneering leadership pays off in *substantial installation and operating economies.*

Westinghouse Mercury Lamps give *more light when new . . . more light for a longer life.* This means maintenance and replacement costs are reduced without sacrificing vitally needed light levels and efficiency standards.

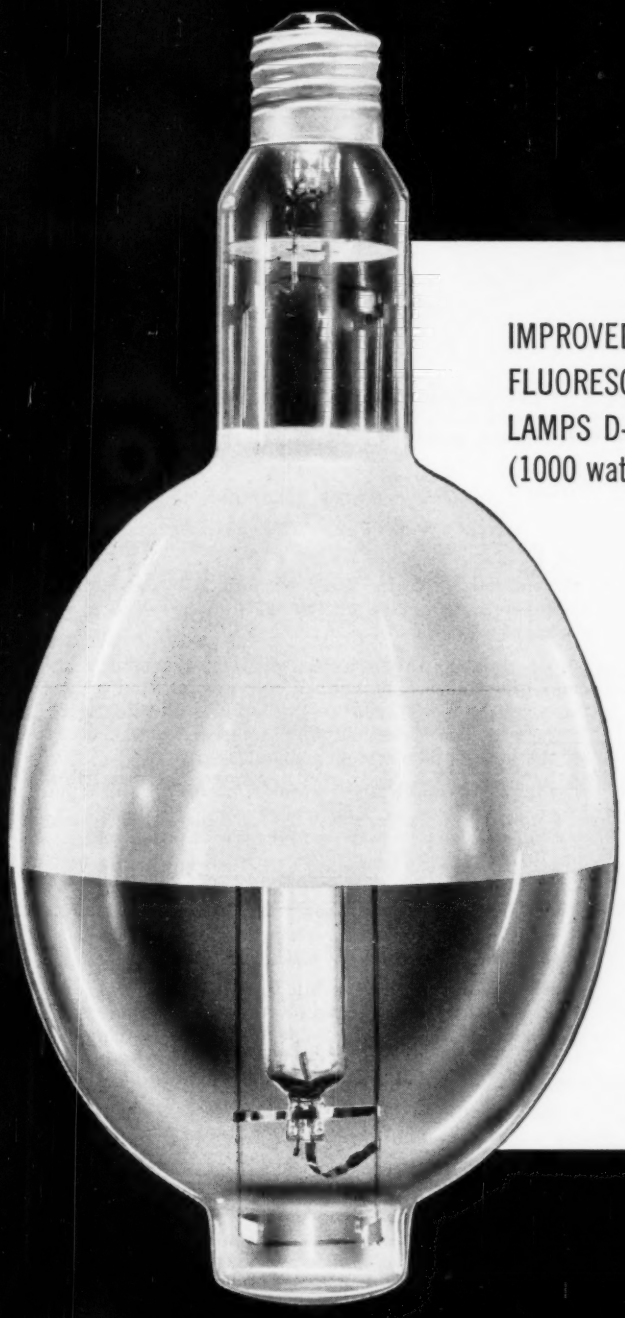
Basic construction advances are another reason why you should specify Westinghouse for plant and factory lighting. For instance:

- Thorium-coated electrodes provide HIGHER LIGHT OUTPUT
- Molybdenum Ribbon Seal assures GREATER DEPENDABILITY, LONGER LIFE
- Hi-Temp Life-Time Bases eliminate INSTALLATION AND SERVICE BREAKAGE

Get the full story from a trained lighting expert who understands your problems. Write, wire or call your Westinghouse Lamp Distributor or the Westinghouse Lamp Division, Bloomfield, New Jersey.

More light for your money... indoors and out... with Westinghouse Job-Tailored Mercury Lamps

YOU CAN BE SURE... IF IT'S



IMPROVED SEMI-REFLECTOR FLUORESCENT-MERCURY LAMPS D-H12-WD AND D-H15-WD (1000 watts, 220-460 volts)

Now get *up to 30% more light* in dusty areas merely by changing to the new, improved Westinghouse Semi-Reflector Fluorescent-Mercury Lamps.

Every Westinghouse D-H12-WD and D-H15-WD Mercury Lamp has a sealed-in phosphor coated reflector that directs the light downward . . . where it is needed!

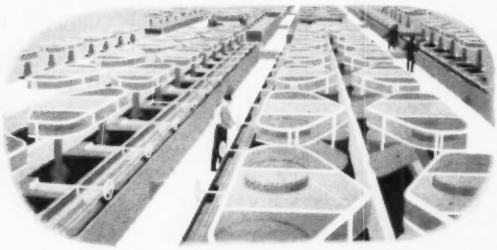
Light output remains higher because dust, dirt and grime cannot impair the efficiency of the sealed-in reflector. Costly reflector cleaning operations are eliminated.

The phosphor coating provides golden white color-corrected light for truer color rendition.

In addition, famous Westinghouse Weather Duty™ construction using special glass prevents damage from condensation, water or industrial fumes.

Westinghouse

INCO NICKEL
PROGRESS REPORT



Inco shows how

"Bubble bath" separates Nickel and Copper minerals

One of many steps in getting Nickel ready for refining

These tanks contain finely ground particles of nickel-copper matte mixed with water and a chemical reagent.

Air is pumped through the solution, creating a mass of bubbles. The copper sulphide portion of the mixture is attracted to the bubbles and floats to the top. The nickel sulphide sinks and is taken off the bottom as a second concentrate.

A development of Inco-Canada research, this process is known as "matte separation." It is but one phase of a costly, complicated milling and smelting cycle.

In this cycle, Nickel, copper, iron ore and eleven other valuable elements are separated from each other . . . and from the rock in which they have been locked for millions of years.

Inco-Canada has made a big investment in time, money and the skill needed to perfect its recovery processes. And the investment pays off in getting more from the ore—more Nickel and other valuable elements.

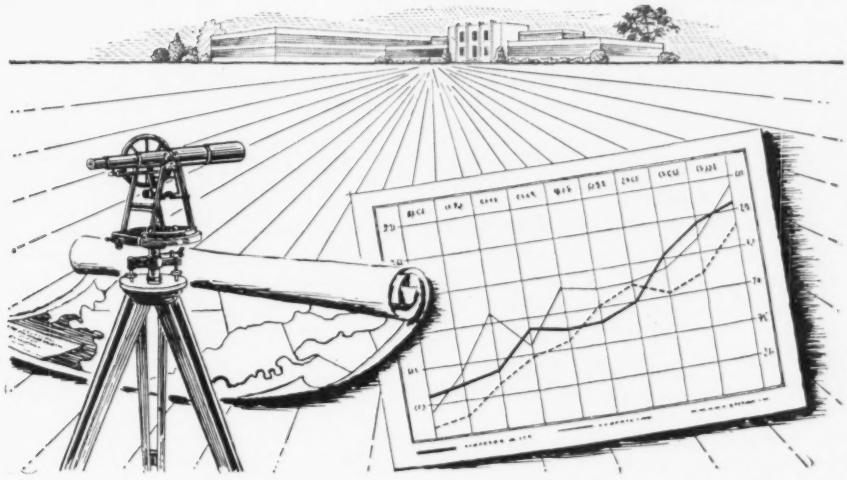
A new 54-minute color film—"Milling and Smelting"—shows in detail how Nickel, copper and other valuable elements are made ready for refining. Loaned to technical societies, universities, industry. Write Dept. 108F.

©1957, T.I.N. Co., Inc.

The International Nickel Company, Inc.
New York 5, N. Y.

INCO TRADE MARK **International Nickel**

The International Nickel Company, Inc., is the U. S. affiliate of The International Nickel Company of Canada, Limited (Inco-Canada) — producer of Inco Nickel, Nickel Alloys, Copper, Cobalt, Iron Ore, Tellurium, Selenium and Platinum, Palladium and Other Precious Metals



CHARTING YOUR COMPANY'S FUTURE GROWTH

WILLIAM E. HILL and CHARLES H. GRANGER

Today even small companies are waking up to the fact that long-range planning is a practical necessity for survival in tomorrow's competitive markets. You don't have to be a mathematician or a mystic to apply the techniques involved; they're practical, down-to-earth, and highly profitable in the long run. Here are the ways successful companies are putting them to work.

AS the U. S. economy continues to expand and countless new products cut into markets once thought to be stable and secure, many companies are being forcibly reminded that management decisions made many years ago can have a potent effect on today's profit levels. With the tempo of technological change quickening, the implications for today's planning are becoming ever more obvious. As one company president says, "I can do very little to affect today's operating results, but I can do a great deal to affect the results five or ten years from now."

Long-range planning of company growth is simpler than many executives realize. And the techniques are, in many instances, yielding surprisingly accurate results. For example, an executive of Minnesota Mining and Manufacturing Company states that 1955's sales volume, at around $282 million, was within $1 million of the amount projected in 1950.

Long-range planning is being successfully carried on by smaller companies as well as by large ones. Even concerns with volume under $1 million have found long-range planning effective. In fact, the small company and the smaller division of the large company may need it even more than the industrial giant. The larger concern can keep going—can even expand—on momentum alone, but the small company lacks this advantage.

How does management actually go about long-range planning?

First of all, it must realize that drawing up a comprehensive long-range program is going to take time, and that the job must be done step by step. Operating heads have plenty to do already, and they can't produce monumental plans at short notice. If told to do so they will comply perfunctorily, and nothing much will come of the plans.

The chairman of one $50 million consumer goods corporation found this out the hard way. He simply told his six division heads to prepare plans for their organizations. Six plans were duly presented. But he had made no provision for coordinating them or for updating. As a result, the plans simply went into the files and stayed there.

Two years later, the chairman made a second attempt. This time he

STEPS IN LONG-RANGE PLANNING

Where They Are Typically Located in the Organization

Key: A = Major function; B = Secondary function; C = Consulting

	Top Management	Director of Planning	Line Management	Staff Departments
PHASE I *Preparing the Requirements for Future Development*				
1. Establish quantitative objectives of profitability and growth, including measurement of the need for new products				
a. Analysis of record of operations				
• Determine historical sales and profit on investment by product line		C	A	B
• Comparison of lines with each other, competitors, the industry	B	A	B	B
b. Establish over-all standards for future profitability and growth				
• Standards for raising deficient product lines to par	B	C	A	
• Standards for maintaining profit and growth of attractive lines	B	C	A	
• Summarization and setting standards for company as a whole	A	C		
c. Projection of present operations				
• Prepare economic forecasts for total economy, industry, markets		A		
• Establish company-wide sales and profit forecasting procedures	B	A	B	B
• Conduct commercial and market research		A	B	A
• Prepare sales forecasts by product line		C	A	B
• Prepare profit and investment forecasts by product line		C	A	B
• Establish standards for profitability, growth, share of market for present product lines and operating units	B	C	A	
d. Determine new profits and volume needed to meet over-all objectives				
• Measure gap between standards **b** and projections **c**	A	C		
• Determine management aspirations	A	C		
• Check feasibility in view of corporate resources (No. 3 below)	A	C		
• Project for new volume and profit requirements	A	C		
2. Statement of business purpose and broad policies	A	C		
3. Audit of corporate resources and limi ations				
a. Individual operating units and individual staff functions	B	C	A	A
b. Company as a whole	A	C		
4. Statement of "qualitative" objectives (stability, new skills, threats to be countered, and so on . . .)				
a. Individual operating units and individual staff functions	B	C	A	A
b. Company as a whole	A	C		
5. Statement of scope or pattern of future operations (including new concepts added to provide over-all balance)	A	C		
PHASE II *Product (Service) Programming*				
1. Product planning and programming				
a. Related to present operations	B	C	A	B
b. Unrelated to present operations	A	A		B
2. Acquisitions				
a. Related to present operations	A	A	A	B
b. Unrelated to present operations	A	A		B
PHASE III *Programming of Other Functions*				
Functional programs to support Phase I and Phase II				
a. Line areas—operations and marketing	B	C	A	B
b. Other areas: R&D, Organization, Finance, Industrial Relations, and so on	B	C		A
Periodic Review and Updating of Objectives, Plans, Programs	A	A	A	A

took the trouble to sell his division heads on the program and to give them some help. He was careful, too, not to expect too much too soon. Now the planning is proceeding successfully.

The importance of allowing enough time cannot be overstressed. At a $150 million food products company, for example, it has taken two years to get five-year sales forecasting established on a uniform company-wide basis. And this might be considered almost a minimum, since the techniques must be checked when results for the first years are in. Obviously, sales and profit projections must be prepared before plans are made for facilities, capital, market development, new products, and so on. But even the first tentative sales projections may provide some benefits in the form of guides for day-to-day operations.

Drawing up a long-range company plan is a process with three distinct phases:

Phase I—Setting the goals, or preparing the requirements for future development.

Phase II—Deciding on specific products or services to be produced.

Phase III—Developing programs covering such functions as organization, finance, research and development, production operations, and marketing to make possible fulfillment of the plans.

Steps in Phase I

The first phase is probably the most difficult. Once the goals—and the general means by which they will be reached—have been set forth, the rest of the programming is comparatively easy. There are five principal steps here:

1. Setting quantitative objectives—sales and profit goals—and determining to what extent existing products can contribute to the planned growth. This will show the need for new products.

2. Drawing up a statement of business concept and broad policies as a guide to future action.

3. Determining what resources the company can draw on: financial strength, skills, market acceptance, and so on.

4. Setting qualitative objectives with a view to utilizing corporate resources to best advantage and perhaps offsetting advantages competitors may possess.

5. Determining the scope and pattern of future operations.

This may seem a somewhat theoretical approach, but it is an essential one. How it works out in practice is illustrated by the experience of a highly successful manufacturer of metal construction products.

Planning for Diversification

Concerned with a possible competitive threat to its principal product, which accounted for more than 50 per cent of its sales, the company decided to diversify by acquisition. But the managers soon realized that they had no idea of the type of company they should seek—its size, profitability, or field. So they decided to analyze their long-range requirements.

First of all, sales volume for each product line was estimated by standard methods of commercial research—forecasting total industry requirements and then the company's own share. Profit forecasts were based essentially on a profit-to-sales ratio at the forecasted level of operations—tempered, of course, by projected changes in manufacturing costs and industry price levels.

One of the main problems in this situation was determining future return on investment, since the accounting system had never provided data of this kind on a product-line basis. It was possible, however, to proportion investment to each product line with sufficient accuracy. Subsequently the accounting department began supplying management with more exact figures on current results.

Projected sales, profit, and investment were laid out in *pro forma* operating statements for each product line for five-, ten-, and fifteen-year periods and then totaled on a consolidated basis. The key product line was projected at two different levels, one which assumed that the implied competitive levels would materialize, the other assuming they would not.

Projected operating ratios—especially profit on investment and growth rate—were compared with the past record for the business as a whole, the past record of key product lines, and the records for competitor companies, the industry, and "all manufacturing." Profit and growth objectives were established on this basis.

The maximum extent of the possible threat to profits on the major product was estimated, and the extent of the need for new products to insure maintenance of consolidated profits was determined.

Then the statement of the corporation's future scope and pattern of progress was drawn up.

As Clinton F. Robinson, president of Carborundum Company, has noted (see DR&MI, January 1954) such a statement sets forth the geographical limitations of the business, the basic product lines both present and future, standards of ethics, profit levels, markets to be served, and general statements on sources of supply, organization principles, personnel, finance, and public relations. (Armco Steel Corporation has one of the earliest statements of this sort in a booket entitled *Armco Policies*, which has been widely distributed.)

Strengths and Weaknesses

The third and fourth steps disclosed the skills and abilities on which the company could most effectively capitalize and those that would have to be augmented.

Among the principal corporate resources, a survey disclosed, were certain unusual marketing skills and unique metallurgical skills. This was a valuable clue to the type of new products that should be added to the line. In addition, the analysis revealed that present volume was closely tied to a cyclical phase of the construction market. Offsetting this became one of the key qualitative objectives.

The fifth and final step established the scope or general pattern of company development and pointed to the kinds of companies the corporation should be seeking to buy and to the development work it should be doing.

Perhaps one of the best examples of the results of over-all company planning is the case of W.R. Grace & Co., which decided on the basis of just such an analysis to enter the

continued on page 105

THE AUTHORS • Director of several industrial companies and the author of a number of papers and articles on management subjects, William E. Hill is Senior Partner of William E. Hill & Company, management consultants, in New York.

Charles H. Granger, a partner in the same firm, was formerly with Chase Copper & Brass Co. in Waterbury, Conn. He is also well known as a writer on various aspects of management.

Whether you've been aware of it or not, there's a rumor mill in your plant—and it can do real mischief unless management works hard and imaginatively at its own communications job. Here's what some companies are doing to keep the grapevine under control.

Devaney Photograph

DANGER! GRAPEVINE AT WORK

ROBERT NEWCOMB and MARG SAMMONS

TOO MANY MANAGEMENTS have learned to their sorrow the folly of being behind the rumor instead of ahead of it. They have sought refuge in the fragile little bomb shelter marked "No comment," failing to realize that it is made of glass—which is both transparent and shatterable.

The grapevine, also known as the rumor mill, is one of the fastest means of communication known to man, and its capacity for distortion is limitless. Allowed to operate unchecked, it can cause strikes, layoffs, discord, and disorder. Properly harnessed and handled, it can be a remarkably effective agency of employer-employee communication. It's up to management to decide which it shall be.

Any newspaper reporter assigned to industrial plant coverage can give you chapter and verse on the battle of rumor vs. fact. He will point out, for example, that in times of labor tension the union involved can usually be depended upon for a statement, while management is often silent. The statement may be fact and it may also be opinion—after all, it's simply a statement from a prejudiced source, just as an opinion from management would be.

Too often the newspaper reporter, with one eye on the clock moving toward his deadline, seeks to prod an answer out of management—and gets nowhere. He cannot seem to locate anyone officially empowered to make a statement, or he is told that it will take some time to draft one, or he is advised that the company has no comment to make.

Penalties of Silence

The harassed (and certainly irritated) reporter has no choice but to base his story entirely on the union's statement, perhaps adding a note to the effect that at press time no word from the company management was available. Whatever conclusions the reading public draws will probably be favorable to the union, because the union has spoken and management has not.

Project this pattern of self-imposed censorship into the average plant and determine for yourself what happens when a rumor, moving with the rapidity and ruthlessness of a prairie fire, spreads among the factory workforce while management stands idly by.

The costs to management for its failure to cope with the rumor mill probably run into the millions. Take a quick look at what unanswered rumors have done in three companies in the past few months:

Keep Them Guessing

A rumor hit the grapevine that a plant was going to be closed down and its operations merged with the main factory. The union asked for clarification. Thinking that he had suddenly been handed a club of some potential value in future negotiations, the factory manager played coy and refused to affirm or deny the rumor. Uneasy employees began to look elsewhere, and before the situation simmered down many of the better-qualified personnel had shoved off. By the time it became clear that the story had no basis in fact, the company's reputation in the community had plummeted. A cer-

Robert Newcomb and Marg Sammons comprise the man-and-wife Chicago consulting firm of Newcomb & Sammons, specializing in employer-employee communication.

tain segment of the local population now feels that, since the company apparently tricked its people once, it isn't above doing it again. Promising local job candidates won't go near the place, and recruiting is infinitely harder than it used to be.

Standing on Dignity

In another case, an employee charged a manufacturer with racial discrimination in hiring. The employee was militant in his attitude, and word of the charge rode the grapevine in a hurry. The fact of the matter was that there wasn't the slightest racial discrimination in the plant. The industrial relations manager, quick to sense the danger involved in such an accusation, took a prompt check to determine the company's record in the employment of Negroes. Finding that Negro employee representation in the organization was well above the community average, he transmitted the information promptly to his top management for the approval he was obliged to secure before putting the figures out for plant consumption. (A classic example of needless top-level participation!) The report hit the chief executive's desk and stayed there. Nettled by what he considered an outrageous intrusion into his company's private affairs, the president refused to answer the charge at all.

So the rumor mill started to grind. Employees who had been loyal, devoted, and satisfied became restless, sullen, and suspicious. The company, it was whispered, was prejudiced; it was setting race against race. Neatly boxed into a predicament he had tried to avoid, the industrial relations manager found himself a victim of the grapevine. If the situation isn't straightened out soon, it will mean the industrial relation man's job, because somebody's head must roll—and you can be sure it won't be the president's.

In a third case, a wildfire rumor came out of an employee survey. The company had brought in an outside firm to conduct a poll of employee attitudes. Questions framed by the surveyors with the cooperation and approval of management invited frankness. The company assured all those interviewed that their anonymity would be preserved, and promised to make the final results known to all employees.

Although the company had been prepared for moderate criticism of policies and programs, it hadn't anticipated a bath in molten lava. Employees let management have it straight between the eyes. So violent and penetrating were many of the comments that the president hastily impounded all the returns. To polite suggestions that the company keep its word to the employees by announcing the results of the balloting, he returned a flat "Nothing doing!"

It was not long, of course, before the rumor mill caught up with this one, and for once the rumors were depressingly accurate. The boys in the shop have agreed that the survey results obviously were too hot to print. But they resent the fact that the suggestions for improvements they made in good faith have been ignored. Many of the spurned recommendations have now been reframed into grievances. Rumors have taken hold of the situation, and the ship is out of control.

Preventive Measures

Those are only three out of dozens of examples of management's entanglement in the grapevine. The preventive in each case is so obvious that it seems almost needless to point it out.

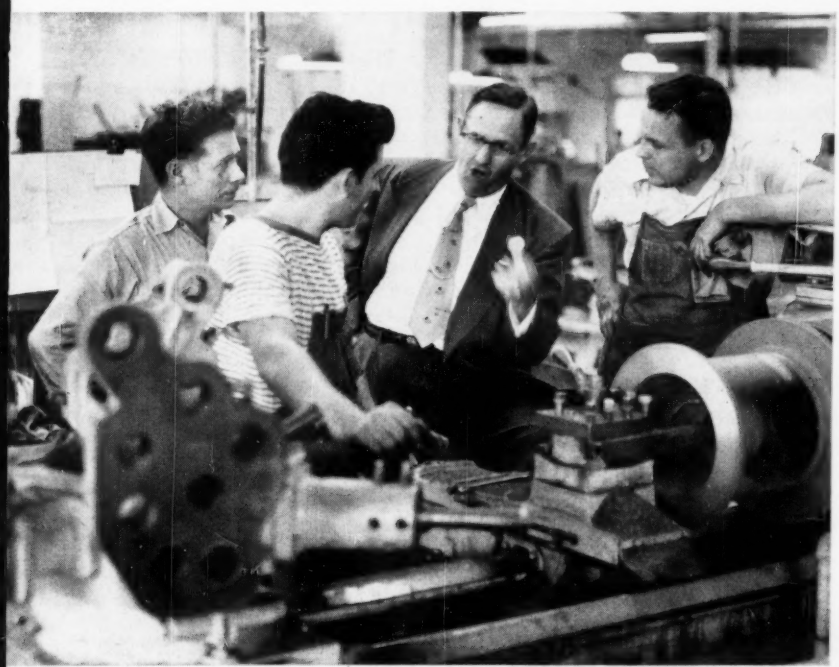
The factory manager caught in a rumor about his plant closing had only to present the facts, accurately and in time. Instead he chose to use the rumor as a threat to the union, and all he did was bring down disaster on his own head.

The racial discrimination issue could have been handled without any repercussions whatsoever simply by publishing the facts the industrial relations manager had in his possession.

The third victim of the rumor mill —the company with the impounded survey results—had made a bargain and had failed to keep it. Certainly no company wants to humiliate itself by parading the critical comments of the employees before the public, but it would have been possible to present an unexplosive capsule of findings, correct some if not all of the abuses itemized by employees, and keep everyone happy. If the company wasn't prepared to do this, it should never have undertaken the survey in the first place.

The moral of all this is: *Don't ignore a rumor.* It may amount to nothing, but take the time to evaluate it in terms of its potential!

One Midwest manufacturer screens out rumors through a well-organized informational network composed of two groups—first, the supervisors, and second, the report-



President Bryant Essick (center) of Essick Mfg. Co., Los Angeles, does his informing on a daily, man-to-man basis. Rumors have no chance to spread in this candid climate.

ers for the employee paper. Both groups work close to the firing line of plant opinion. Both groups have been briefed, not in the techniques of espionage, but in methods of ferreting out rumors that can damage and destroy. In this company, supervisors are asked to be attentive to the plaints of their associates and to relay—with the utmost promptness—any distortion of fact that might create trouble if spread. Supervisors are asked to bring questions, particularly those of shop personnel, into supervisory meetings for discussion, to see "if there is something back of the question." The plant reporters, a valuable but neglected avenue of two-way communication in any plant, are in constant social contact with shop and office people. They can help slow the rumor mill to a halt if and when their cooperation is sincerely solicited, and this company knows it.

Two single-plant factories publish on their bulletin boards a simple message called "It's A Fact!", geared as the need requires to the correction of rumors. Neither company actually refers to the rumor. They merely set the record straight in a medium which has wide readership and acceptance among employees.

Turning the Tables

Some companies use the grapevine to start rumors of their own. The industrial relations manager of one manufacturing plant says he merely whispers a piece of information management would like to get into circulation to a certain superviser, with the warning that he mustn't breathe it to a soul. Within an hour, says the manager, the whole plant knows the story.

Another personnel man, whose responsibilities include preparation of a confidential letter to supervisors, sees to it that at least three copies of important issues are left face up on desks in certain shop offices. Since the copies are stamped "Confidential," he knows that the message will be all over the plant before the shift is two hours old.

A third manufacturer uses a telephonic device for the recording of presumably confidential statements to supervisors who dial a "secret number" to get them. Management is well aware that the number isn't secret at all, and that probably every employee in the plant knows it by heart. Accordingly, the company uses the device for messages it wants supervisors to hear—and to overhear.

The good supervisor can always roadblock a vicious rumor if management keeps him informed. Here a GE supervisor briefs his group on plant news.

Granted that some companies might shy away from such procedures, the fact remains that management must keep constantly alert to the existence of the grapevine. If there are indications that the grapevine is unusually strong, the reason may well lie in weak basic communication.

Don't Ignore the Labor Press

Personnel people who double as "rumor-quenchers" recognize that rumors often originate in the labor press. Last year, in the pre-bargaining softening-up process, a union teed off on the employer with the loud suggestion that the place was a "sweatshop." Since working conditions in this particular factory were widely recognized as being far above average, the company management turned at once to its employee paper as a medium of response. The charge of "sweatshop" was challenged, and the doors of the plant were immediately swung wide to any individual or group wishing to come and have a look. Visitors toured the plant, saw anything they wished to see, and talked with anyone they chose. At the end of the tour, a discussion period was devoted to questions and answers. The "sweatshop" rumor died fast. Incidentally, this company for some years has maintained a gloves-off policy in discussing similar union-inspired criticism, and has managed to come away unscarred after each encounter.

Those embroiled in the lively area of the plant rumor ought to pay more attention to the union press than they do. Here can often be found the first indication of where the heat is to be applied next. The personnel manager who doesn't watch the union press (whether his plant is organized or not) remains uninformed—and unarmed.

The rumor-quenchers in management do not always confine their counter-intelligence to the plant itself. Back of the man at the bench is the woman at the kitchen range. She is interested in rumor because she may be either a beneficiary or a victim of it. Because of the affinity between purse strings and apron strings, she has a natural curiosity about what's going on at the plant. So, in attempting to correct rumors, it is well to remember the housewife. She wants to hear the facts, too. If she doesn't hear them from management, she is apt to settle for the rumor.

Some Definite Steps

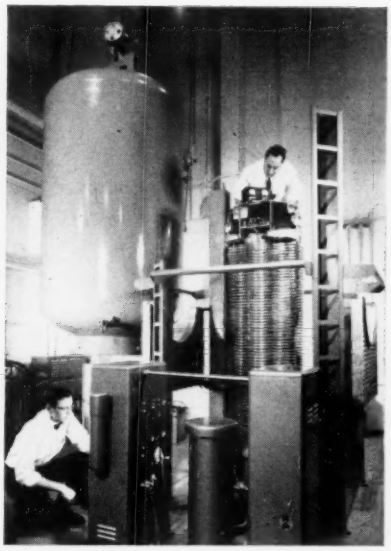
These might be considered a few of the summary steps in getting the rumor mill to work for you instead of against you:

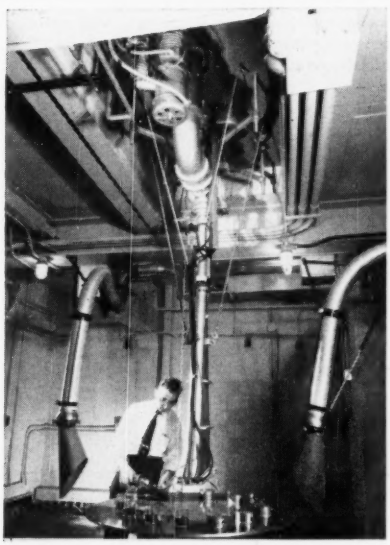
1. *Evaluate every rumor you hear.* Weigh it in the light of what good it can do you—and what possible

continued on page 58

RADIATION PROCESSING . . . NEW TOOL FOR INDUSTRY

ANNESTA R. GARDNER, *Industrial Editor*





New petroleum products, and better ways to produce old ones, will result from radiation studies by major oil producers. These photographs show a Van de Graaff generator in the new Gulf Oil research laboratory. Machine is at top, treatment table at bottom.

In food, textile, rubber, and chemical plants, atomic radiation is going to work to produce new and better products. Here's what it means to you.

THE WONDERS of the atomic age are nowhere more entrancing than in the processing field. Promises of food that will stay fresh on the shelf for months, leather that won't mildew, chemical reactions that go to completion in a fraction of the time previously required—these sound almost too good to be true.

But atomic radiation and high-energy electron beams can do all these things and more. The question is: When, on a practical basis?

The answer in a few cases is, "Right now." High-energy radiation is being used to increase the strength and heat resistance of polyethylene plastic bottles and insulation. It has been used to solve a production problem in the manufacture of office equipment, and to sterilize drugs and medical supplies. But most of its big jobs are still in the future.

For some industries, radiation processing may never be more than a secondary technique. In others, it may be not only a help, but an absolute necessity. The intense interest of the oil industry in radiation, for instance, stems from the insistent demand for higher-octane gasolines and new chemical products.

Almost every major oil company has an isotope source, an electron beam generator, or both. Several are planning to build reactors. Esso Research and Engineering is spending "well over a million dollars a year" on nuclear radiation and nuclear research. It has a large Cobalt 60 source installed at its Linden, N.J., research center, has studies under way at the Brookhaven National Laboratory and Battelle Memorial Institute reactors, and is sharing the use of a Van de Graaff accelerator with one of its affiliates.

How soon programs like this will begin to pay off, no one can say for sure. But the best estimates indicate that large-scale commercial application is close enough to command the immediate attention of manufacturers of many products.

What, then, is radiation processing? How can it be put to work?

Radiation processing is, simply, the use of atomic particles and electrons, gamma rays, or x-rays to change the structure and properties of materials, kill germs, and create new materials. Such radiation may be obtained directly from nuclear reactors, from materials made radioactive in an "atomic pile," from waste fission products, or from any one of several machines—electron beam generators of the resonant transformer or Van de Graaff type, linear accelerators, or capacitrons.

Radiation processing has real advantages over present-day methods in many fields. But it also poses many new problems—in equipment design, in control of radiation dosage, and even in packaging.

On the following pages are outlined some of these problems—and the solutions that are being found.

article continues on next page

Radiation processing . .

The possibilities for transforming materials by means of radiation make the dreams of the alchemists seem pedestrian.

As Dr. H. H. Hausner, AEC consultant and vice president in charge of nuclear engineering at Penn-Texas, told a recent National Industrial Conference Board seminar:

"Irradiation is able to change the physical properties of solid materials; it affects density, strength, hardness, ductility, electrical, magnetic, and other properties, and may even change the over-all dimensions of materials. . . ."

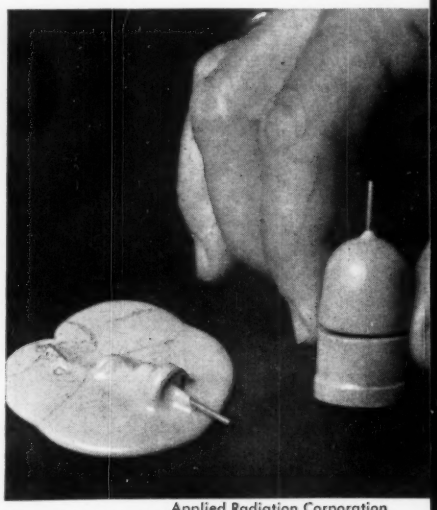
Under the influence of radiation, soft materials become hard, and hard ones may expand or soften. Insulators may become conductors, while conductors lose their conductivity. Irradiation increases the affinity of cotton fibers for basic dyes and decreases their affinity for direct dyes; and it may affect fiber strength as well.

Strangely enough, there seems little difference in the results achieved with the various types of radiation. But there is a big difference in the way radiation of any kind may affect even closely related substances.

For instance, Quartermaster Corps researchers report that broccoli and brussels sprouts seem much better able to stand high dosages than cel-

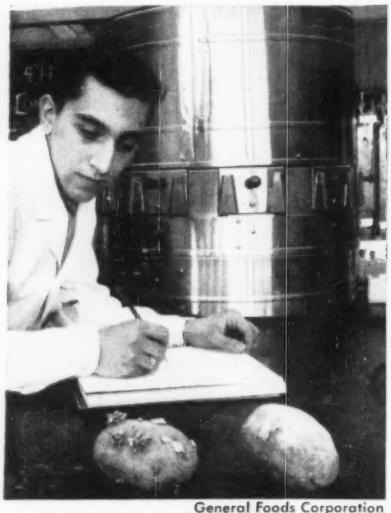
General Electric Company X-Ray Department

Heat resistance of polyethylene is vastly improved by radiation, as these treated and untreated bottles prove. After fifteen minutes in an autoclave at 250° F, untreated bottles (foreground) are reduced to blobs, while treated ones are still in good condition.



Applied Radiation Corporation

Probe tips for high-frequency voltmeters are now commercially irradiated, stand 30-minute exposure at 400° F after treatment.



General Foods Corporation

Sprouting of potatoes is inhibited by irradiation. This is a promising application for irradiation because dosage requirement is low.

General Electric Company X-Ray Department

Food infestation can also be inhibited by low-level irradiation. Photographs here compare untreated and treated beans. Researchers believe that this type of treatment for grain products, on a production-line basis, might well compete in cost with fumigation.

. . what it can do

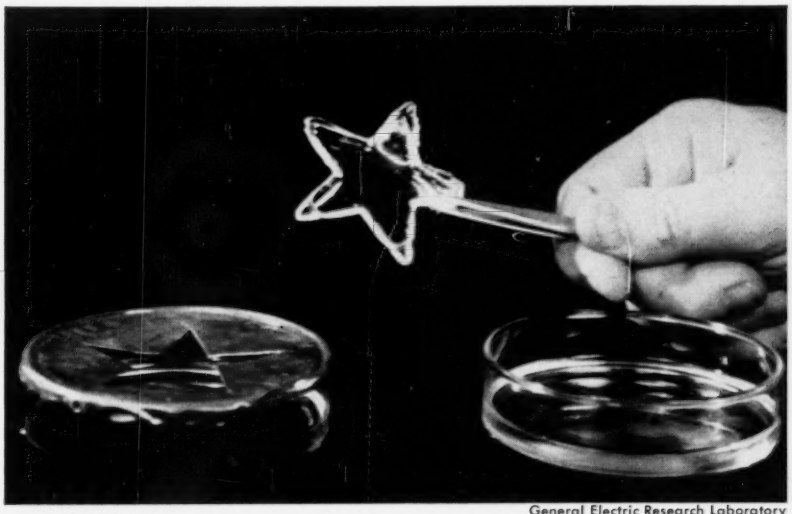
ery and lettuce; and a dose which apparently leaves pork unharmed may change the taste, appearance, and odor of beef.

A lot more needs to be learned about why radiation has such different effects on similar materials and about ways of combating its undesirable effects.

Much more must be learned, too, about how to handle combination materials—tires, for instance. As Goodyear Tire & Rubber Company points out, a radiation dosage large enough to vulcanize a tire may destroy the fabric that is used to reinforce it. It may, says Goodyear, be necessary to develop brand-new rubberlike materials to take full advantage of radiation vulcanization.

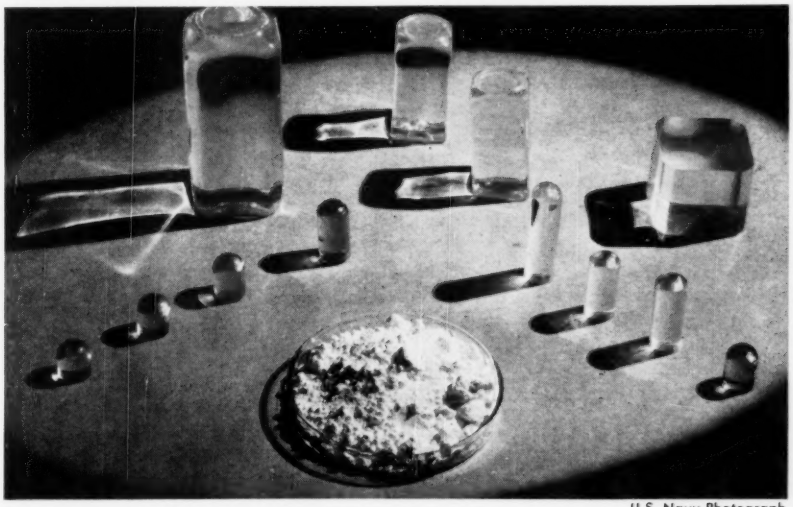
But problems like this are not insuperable. And, as the following pages show, much progress is being made.

article continues on next page



General Electric Research Laboratory

Shape polymerization is only one of many tricks that can be done with radiation. For this demonstration, radiation was focused on resin through a star-shaped aperture. Since the resin hardened only where radiation struck, star-shaped piece can be lifted out.



U.S. Navy Photograph

New polymers can be produced by radiation, as these Naval Research Laboratory samples prove. NRL notes that radiation-created polymers generally have higher density, heat-distortion point, and solvent resistance than plastics produced by conventional methods.

Commercial applications for radiation as a processing tool *are still few and far between. But today's research studies point the way to tomorrow's production-line techniques. Listed below are a few of the applications that have been shown to be technically possible, if not yet economically practical. Processes actually in use are starred.*

TEXTILES AND LEATHER

Promote dyeing of synthetic fibers
Increase fiber strength and heat resistance
Create new polymers from which fibers can be made
Prevent mildew

CHEMICALS

Increase the yield of present-day chemical processes and reduce heat and pressure requirements
Create new chemical compounds
Improve the action of catalysts
Burn out impurities

DRUGS AND MEDICAL SUPPLIES

Sterilize without heat★
Extend the life of fresh tissues
Increase strength of sutures

PLASTICS, PETROLEUM, AND RUBBER

Increase strength and heat resistance of such plastics as polyethylene★
Improve solvent resistance and electrical properties
Vulcanize rubber
Create new polymers
Produce foamed resins
Change the viscosity of motor oils
Supplement catalyst action in standard petroleum processing systems
Produce gasoline from refinery waste gases

FOOD

Sterilize packaged food products
Prolong shelf life of fresh foods
Prevent grain infestation
Inhibit sprouting of potatoes
Produce new plant mutations

Note: This listing covers only direct use of radiation to change or improve materials. For information on the many practical applications of radioactive materials as tracers, inspection devices, and tools for chemical analysis, see July 1956, page 35.

What it may cost .

Radiation processing is certainly a part of the atomic age. Had it not been for the atomic energy program, radiation processing might still be just a gleam in scientists' eyes. Yet, paradoxically, it is the radiation-generating machines, not the nuclear reactors or their by-products, that are getting the commercial jobs today.

The time may come when radioisotopes and waste fission products are used in processing. But that day is not yet here. Right now, the radiation-generating machines represent the lowest-cost, simplest, safest, and easiest-to-procure source of atomic radiation.

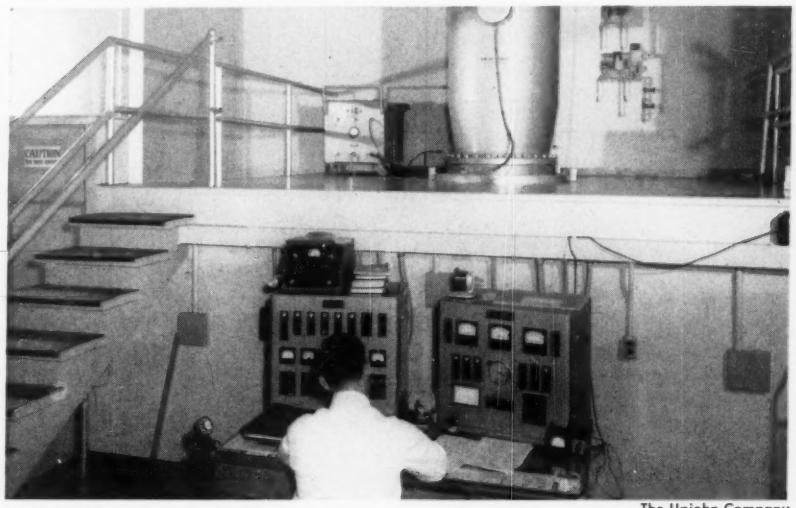
The initial cost of a 2 or 3 million electron volt resonant transformer or Van de Graaff generator is about $120,000. That's not cheap. But a comparable isotope source would cost several million—if it could be obtained, which it cannot.

Looking toward the future, though, when isotope sources may be easier to obtain and lower in cost, it should be noted that they, too, have their advantages.

The radiation from a medium-size

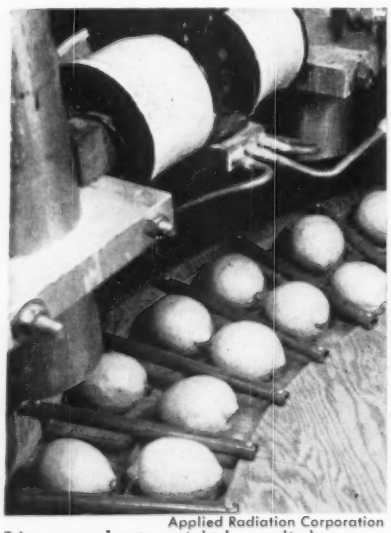
The Upjohn Company

Production-line job for radiation is sterilization of heat-sensitive drugs. Here, antibiotic capsules are fed to machine shown at right.



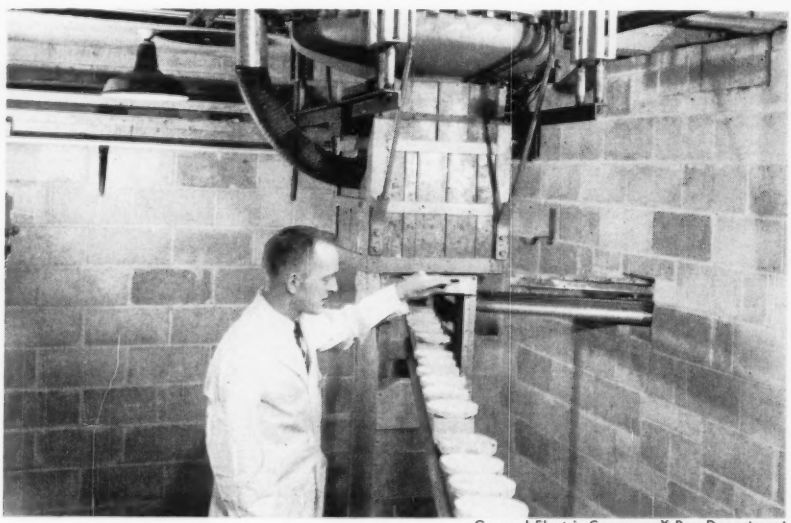
The Upjohn Company

Electron beam accelerator is radiation source for production-line drug sterilization. This Van de Graaff unit is also used for research, has created several new, high-yielding strains of antibiotic-producing organisms and a number of bacterial and fungal mutants.



Applied Radiation Corporation

Linear accelerator might be applied to commercial irradiation of food products this way. Here, lemons are used for demonstration.



General Electric Company X-Ray Department

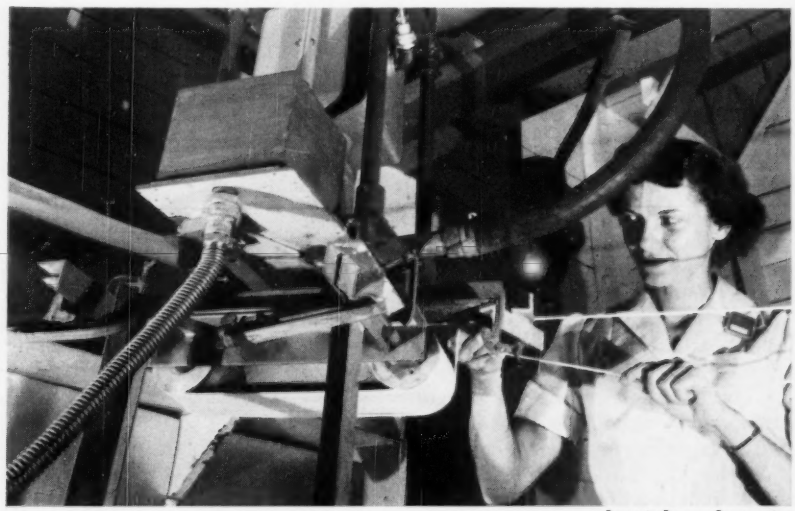
Resonant transformer is used for experimental irradiation of meat products at Swift & Company. Since trichinosis control requires relatively low-level dosage, this may be one of the first regular commercial applications for radiation treatment in the food field.

. . and how it can be done

electron beam generator will penetrate little more than a quarter of an inch of water (even less of materials of higher density). This means that total material thickness can be barely half an inch. A comparable isotope source, on the other hand, will penetrate at least six times as far. Linear accelerators, particularly when converted to x-ray generation, can do nearly as well. But even with these machines, it's important to keep products—and especially packages—as thin and flat as possible.

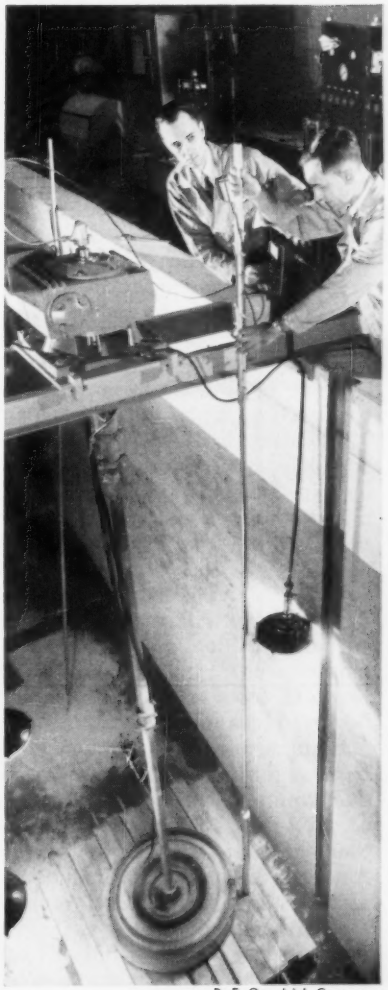
It is also important to make sure that the product is adaptable to mechanized handling. And, as Robert E. Burks, Jr., head of the Organic Section of Southern Research Insti-

article continues on next page



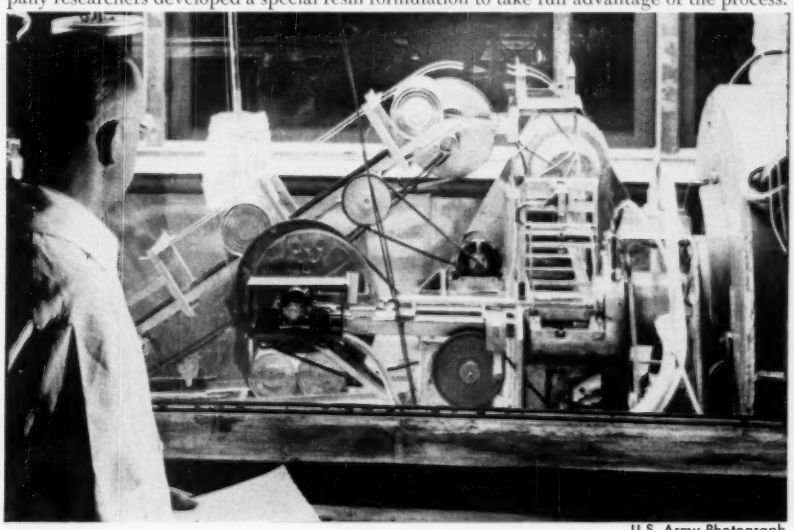
Sequoia Process Corporation

Polyethylene-coated wire is irradiated to improve strength and heat resistance. This product, like irradiated polyethylene insulating tape, is now available commercially. Company researchers developed a special resin formulation to take full advantage of the process.



B. F. Goodrich Company

Rubber can be vulcanized by radiation from nuclear reactor fuel elements, but the process is not yet commercially practical.



U.S. Army Photograph

Reactor fuel elements are being used in research on food sterilization as well as for vulcanization studies. The penetrating gamma radiation from these elements readily goes through three-inch cans. Note how handling is mechanized with conveyors, push-rods.

American Meat Institute Foundation

Radioactive cobalt supplies gamma rays for experimental hot-dog irradiation, aimed at studying effects of high-level dosage.

tute points out, if the product is packaged it is important to choose a packaging material that is resistant to radiation damage and will be as compatible with the product after irradiation as it was before. This latter point is particularly important in the case of food products.

Food treatment, as a matter of fact, constitutes a special case in many respects.

There is no doubt that radiation can sterilize foods. But the amount of radiation that is required to do a complete sterilization job is large; and, in many cases, the undesirable changes it may produce in the flavor, color, and odor of foods are almost as great as its benefits.

When one comes down from the lofty goal of sterilization and considers pasteurization, trichinosis control, inhibition of sprouting, and de-infestation of foods, radiation treatment begins to look more practical.

Equipment-makers estimate that meat might be pasteurized on a production-line basis at a cost of about a cent a pound (one estimate is less than half a mil). However, the American Meat Institute Foundation says "although pasteurizing levels of atomic radiation seem to be effective in prolonging the shelf life of fresh meats . . . the apparent cumbersome nature of the irradiation technique presents a barrier to its use by the meat-processing industry at the present time."

Treatment of plastics to improve their physical properties requires larger doses of radiation than treatment of food, and costs a good deal more (estimates range from two to six cents a pound), but the results in some cases are so spectacular that they justify the extra cost.

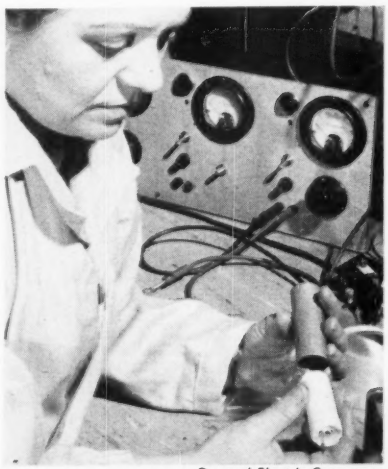
But cost is by no means the only consideration in radiation processing. Safety, for the operator as well as for the product, is a question that cannot be ignored.

However, it is possible to by-pass this problem by taking advantage of the irradiation services that are now offered by most of the equipment-makers and many research institutions.

Where, then, can radiation treatment be put to work right away? The most promising prospects seem to be in the medical and plastics field. A good example is Clay-Adams' use of irradiation to sterilize the polyethylene catheters it makes for intravenous infusion.

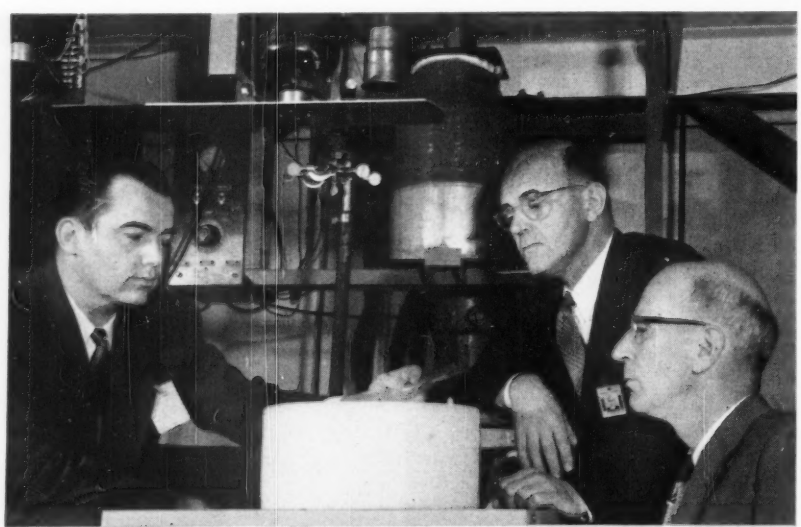
These catheters take the place of hypodermic needles and have several advantages in convenience and comfort for the patient. But catheters must be sterile. The special medical grade of polyethylene used cannot stand an autoclave (live steam) treatment, and germicide sterilization is, in this case, a lengthy and inconvenient process. Irradiation does the job rapidly and efficiently, and at reasonable cost.

Radiation processing is, then, practical for some companies today. It is likely to become a necessity for others tomorrow. If your company makes or uses any of the products listed on page 49, now is the time to find out whether radiation can be put to work for you. END



General Electric Company

Irradiated polyethylene tape seals and protects core of Sonotone nickel-cadmium battery, used in missiles, photo equipment.

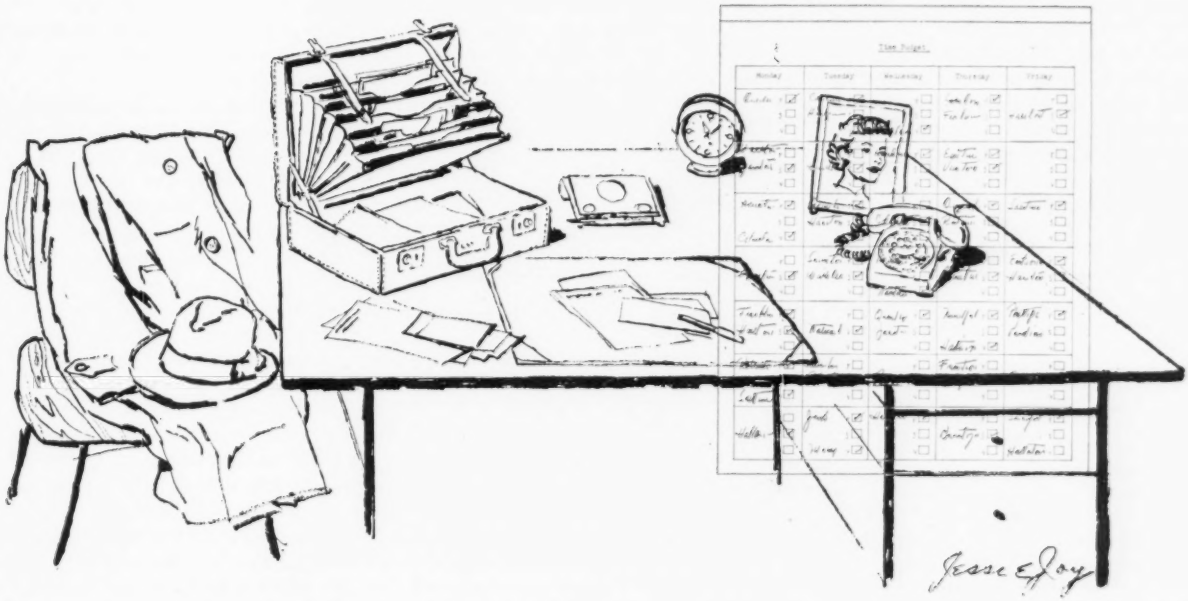


General Electric Research Laboratory

Live tissue is preserved by irradiation. Schenectady hospital has been using radiation-sterilized blood vessels in transplant and grafting operations for more than a year, reports excellent results. Note how the blood vessels are packaged for the radiation treatment.

Clay-Adams Company

Polyethylene catheters, sealed in polyethylene bags, are sterilized by Van de Graaff machine. These are now widely used.



HOW TO HAVE TIME FOR EVERYTHING

AUREN URIS, *Research Institute of America*

Executive time is one of industry's costliest commodities—but few executives know how to use it as economically as they might. If a rigid schedule won't work for you (chances are you've already found that it won't), why not try a flexible time budget? Here's a plan that's actually been tested on the job.

"YOUR IDEA about saving time is excellent," said the personnel officer of a large upstate New York bank, "but people won't use it."

"You think it involves too much work?"

"It's not the work. As I see it, you're like the doctor who tells me, 'Cut down on the calories.' I know I'd benefit, but I still can't help sneaking in that pie à la mode.

"I know I should be more methodical in my use of time. Lord knows, my efficiency could be increased considerably. But I find it difficult to change old habits. . ."

For the executive, the problem of time-saving is one not so much of method as of *motivation.* Almost any systematized approach to better time utilization would improve the effectiveness of the average manager.

But, in addition to the old-habits-never-die obstacle, another one rears its interfering head: "Executive activity," goes the old refrain, "cannot be regimented."

Maybe. Maybe the case against executive self-regulation is strong—logically and psychologically. But listen to the outcries on the opposite side:

"If I could only get a half-hour a day to think. . ."

"Time pressure accounts for more ulcers and fewer sound decisions in this business than any other factor."

"I defer a dozen important matters a day to have the time to handle the essentials."

"The world of management is waiting to hail the great genius who invents a 25-hour day."

Two researchers, Robert Dobbins and William Shepherd, have developed and pre-tested a novel approach to the problem of executive time utilization. As described here, it incorporates the suggestions and revisions of many executives at all management levels.

This new approach to executive time-saving lies in the old idea, "Time is money." Executives sometimes talk of "budgeting their time." But if they really spent money as they do time, they'd end up in the poorhouse.

Ninety-nine executives out of 100 will make almost every time expenditure that seems advisable *at the mo-*

ment. Then they try to make up for it by borrowing time that should be used for rest and recreation: working late, laboring on weekends, plugging away on buses and trains. This is the equivalent of buying every item that takes your fancy, then borrowing to meet the bills.

By accepting the "time is money" adage literally, we arrive at a new concept of executive time-saving. Properly used, this approach can help end the usual symptoms of being strapped for time: excessive hours, oversize backlog, insufficient time for long-range job objectives. Basically, the idea involves a "time budget" and calculated spending.

To apply the plan, you follow five steps:

1. *Work out a weekly time "income."* The starting point of your time budget is your reasoned decision on how much time you *want* to spend on your job—30, 40, 50 hours. Let your decision represent a balance between realistic job demands and your health or fatigue limitations.

2. *Distribute your time expenditures under basic categories.* Three headings typify your time obligations: fixed, semi-flexible, variable.

- *Fixed.* These are items in your work week that come up regularly and cannot be cut down. Regularly scheduled meetings and routine administrative matters come under this heading.
- *Semi-flexible.* Items properly belonging in this group, like maintenance expenses in your cash budget, can be adjusted within limits. As in home maintenance, you'll find, there's an irreducible minimum. But you have some leeway. In making up a given report, for example, you may decide to take two hours to do a job that is adequate, rather than spend five hours for what may not be a commensurate return in value.
- *Variable.* Your entries under this heading are those you can control completely. An idea for improving a work procedure, for example, may be assigned just a few moments of on-the-job time and tabled for later action, or you may want to immerse yourself completely in investigating its possibilities.

Using the time expenditures chart above, list the job activities that make up your week under the appropriate headings, indicating the time spent weekly per item. Note our examples as a starter.

WEEKLY TIME EXPENDITURES

Fixed		*Semi-Flexible*		*Variable*	
Regular conferences with your superior	10 hrs.	Time spent supervising subordinates	7.5 hrs.	Long-range planning	1 hr.
Regular meetings with subordinates	12 hrs.	Handling daily mail	5 hrs.	Personal time: shopping, barber	2 hrs.

3. *Prune expenses.* With your time expenditures broken down according to the fixed, semi-flexible, and variable categories, you're in a better position to take a minute-pinching view of each item.

Apply questions like the following to determine where your spending has been unwise—either too liberal or too miserly:

- Is the time allotted in keeping with the importance of the item?
- Would a slight increase in time spent on an item yield a decided improvement in results?
- Could any item in the fixed category be shifted to the semi-flexible list? (Perhaps an old routine is keeping you to a pattern that is now outgrown.)
- Should an item now listed as semi-flexible properly be reassigned to the fixed category—and be treated accordingly? (You may want to do this with a too easily neglected activity—planning, for example.)
- Are there any items in the variable category that can be dropped?

4. *Plan an "ideal" time budget.* Note that the time budget described here is *not* a schedule but a tool for the executive who cannot tie himself down to a rigid routine.

Draw up a chart along the lines of the one shown (in part) on page 102, allowing enough separate spaces to list each of your major tasks, projects, or commitments for every day of your working week.

The budget is not an hour-by-hour daily program. It is intended to be a means of getting an at-a-glance picture of how you're set at any point in the week. This will help you build flexibility into your work day.

Let the following considerations guide your time budgeting:

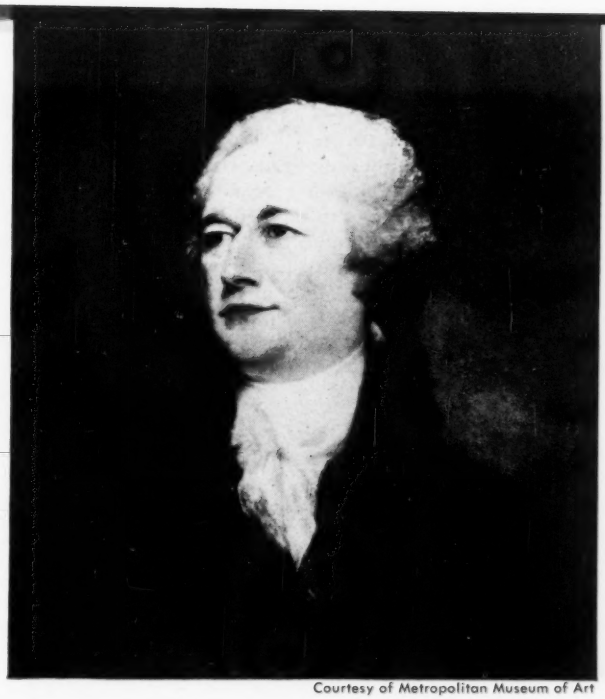
- *Even out time commitments.* As much as possible, spot your large time expenditures at points in the week where they do not conflict with one another. For example, pinning yourself down to two three-hour meetings in the same day would mean trouble if a special matter requiring half the day came up. In general, keep a critical eye open for any tendency to undertake time commitments when you have no "income" available.
- *Fill out the day with a combination of fixed, semi-flexible, and variable elements.* To accomplish this, classify each item on your week's budget by checking the appropriate box alongside it: F for fixed commitment, S for semi-variable, and V for variable. Check to make sure no day is top-heavy with F items. Reason for the mixture is to make possible a quick reapportionment of time in case of unexpected demands.

5. *Use the time budget as a tool for adjusting to changing time demands.* The value of the time budget, like that of a money budget, lies in its control function.

Suppose a sudden "must" expenditure comes up: Your boss calls you into an unexpected meeting that runs for three hours. If you then make the other time expenditures on your daily calendar, you run into three hours of overtime. But consider some alternatives the time budget makes possible:

- *Cut down on variables?* A glance at your time budget should tell you whether there are items that belong in the variable category. If so, you may, for this special occasion, trim them down, transfer them to another day, or eliminate them altogether.
- *Apportion your time?* A look at your budget may reveal the possibility of working overtime in small doses. After adjusting the variables downward, for example, you may still find it desirable to put in one

continued on page 102



Courtesy of Metropolitan Museum of Art

SHAPER OF THE AMERICAN BUSINESS SYSTEM

LOUIS M. HACKER, *Columbia University*

More than a century and a half ago Alexander Hamilton, surveying a young nation rich in natural resources but poor in credits and starved for manufactures, devised a blueprint for U.S. business growth. His vision of a competitive enterprise system is here vividly recreated by a distinguished American economist and historian. Dr. Hacker sketches a backdrop for the dramatic birth of an industrial empire, and samples the mature wisdom of a young man who was as practical in meeting the business problems of his own day as he was unswerving in his devotion to the fundamental principles of a free economy.

THIS IS the 200th year of Alexander Hamilton's birth, and it is particularly fitting that the business community of America should hail it. In many ways we are in Hamilton's debt: In *The Federalist* papers, Hamilton clearly expounded the nature of our republican government with its distribution of powers among the executive, judicial, and legislative branches. As our first and greatest Secretary of the Treasury, he unerringly put his finger on the fundamental fact of governmental responsibility for fiscal and monetary policy. As George Washington's closest adviser, he helped lay out the true course of our national survival in foreign relations.

His grand scheme—daring, imaginative, but always realistic—Hamilton was able to push because he linked it with the confidence he had in American business men—"the most enlightened friends of good government." The consequences were reciprocal, and they were immense: American savings, instead of being hoarded or employed in speculation, began to flow into enterprise; and these processes created the habits and institutions upon which America's economic greatness has been built.

In the brief period of ten years, the decade of the 1790's, not only was the young republic put on a secure footing politically; by 1800 it was already utilizing all those devices—sound banking practice, cor-

porate organization, the encouragement of immigration—that eventually were to lead to industrialization and mounting national income.

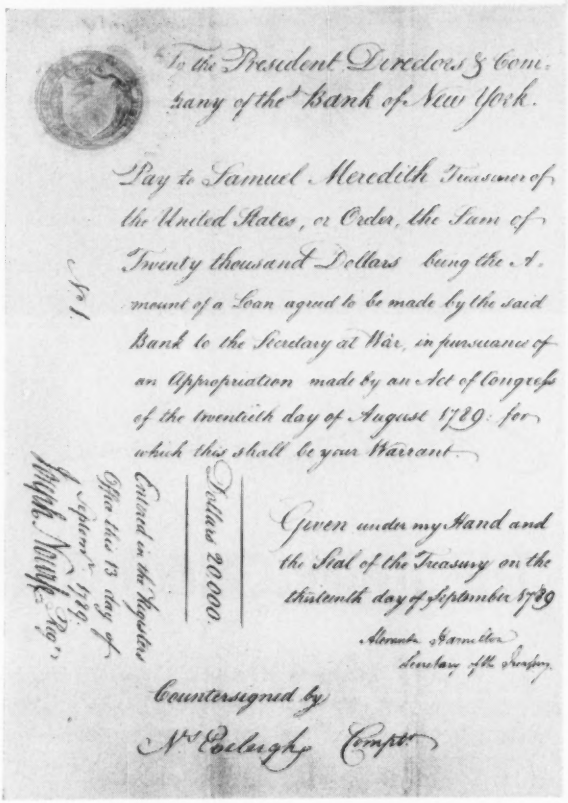
In all this, government was to encourage and to aid, but only because the young nation and economy were threatened at home and constantly beset by perils abroad. Though he called for a strong and energetic central government, Hamilton was not a proponent of the welfare state. Far from it: To him, public intervention was a matter of necessity and opportunity. When it had achieved its short-run purpose, then "the industry of the people, under the direction of private interest, will, upon equal terms, find out the most beneficial employment for itself."

What made so young a man—he was 32 years old when he entered Washington's Cabinet in 1789—so wise in the ways of statecraft and so certain that only "under the direction of private interest" could a nation prosper? As a youth, he had been brought up in a world constantly living on the edge of bankruptcy. As a young man, he had watched the new United States moving towards destruction because of fiscal irresponsibility and failure to safeguard property rights. He had come early to the conviction that governments survive only by the establishment of their faith and honor and the creation of a climate in which economic enterprise can thrive.

Alexander Hamilton was born in the British West Indies. For the greater part of his early years, until he was 16, he lived in St. Croix, then part of the Danish West Indies and now in the American Virgin Islands. When Hamilton's mother died in 1768—his father had deserted the family a few years earlier—young Alexander was on his own. He went to work in the warehouse and counting room of Beekman and Cruger, a firm of New York merchants engaged in the West India trade. Before long, the youngster was the firm's senior clerk, and he undoubtedly engaged in small trading ventures of his own.

A keen observer of the political and economic life about him, the young Hamilton took certain lessons to heart: that an economy dependent upon agriculture alone, particularly a single-crop agriculture like the sugar cultivation of the West Indies, was leaning on a slender reed; that rising debt, unless accompanied by improved productivity and lower costs, inevitably proved fatal; and that governmental restraint in the conduct of its own affairs lay at the very heart of the mattter. When he quit the islands to sail for Boston and settle in New York to study at King's College (later Columbia College), he was already knowledgeable in the ways of a complex world and in the processes by which working and saving took place and wealth, in the economic sense, was created.

The young student never finished his education. In 1776, he was a captain of volunteers in the American Revolution. Soon he joined Washington's staff of brilliant young men. At Yorktown, Hamilton led his own battalion against the British redoubts. At the same time—with mounting concern, for he had a keen sense of property and therefore of legality—he was seeing the War for Independence being converted into a revolutionary struggle. With the dissolution of the Crown governments in the American provinces, extralegal bodies were springing up to seize property and maltreat Loyalists. When governments superseded these committees of safety, the same irresponsible leveling continued. Property was sequestered, and there was increasing resort to the issuance of paper bills of credit, which went the way of all such debased currencies.


To the President Directors & Company of the Bank of New York.

Pay to Samuel Meredith Treasurer of the United States, or Order, the Sum of Twenty thousand Dollars being the Amount of a Loan agreed to be made by the said Bank to the Secretary at War, in pursuance of an Appropriation made by an Act of Congress of the twentieth day of August 1789: for which this shall be your Warrant.

Given under my Hand and the Seal of the Treasury on the thirteenth day of September 1789

Alexander Hamilton
Secretary of the Treasury

Countersigned by
Nath. Pendleton Comptr.

No. 1

Dollars 20000.

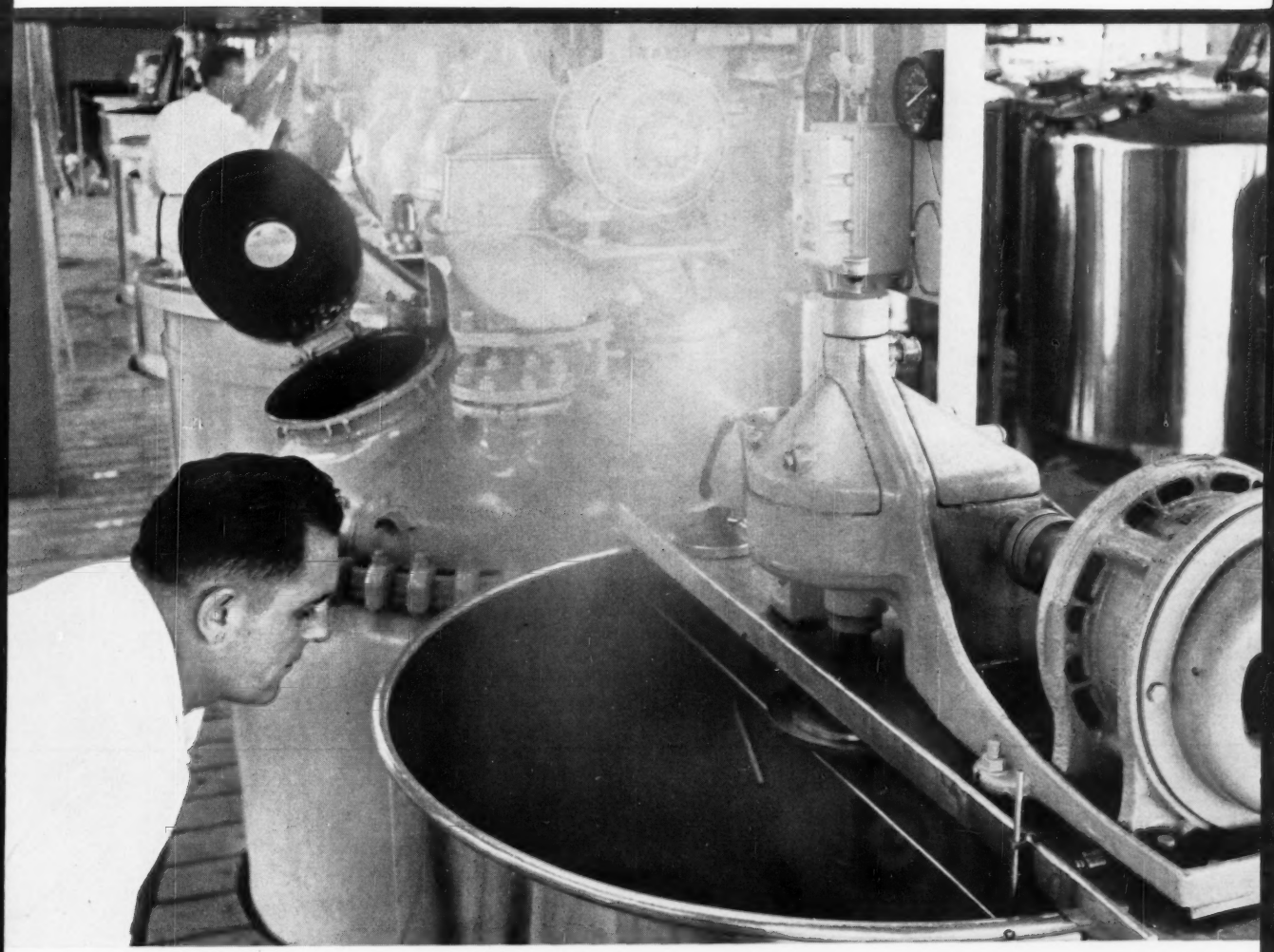
Entered on the Register
Office this 13 day of
September 1789
Joseph Nourse Reg.

Time was when the Federal Government borrowed in thousands instead of in billions. This warrant is one of a series—for a total of $200,000—on a loan arranged by Alexander Hamilton when he was Secretary of the Treasury. The money came from The Bank of New York in 1789. Courtesy of The Bank of New York.

There was no financial support for the central government, and the new states were no better off. Prices soared, and the army was badly supplied. If it had not been for the French alliance—and the credits accompanying it—the War for Independence might never have been won. But peace brought no relief from the uncertainties of weak political management.

The Articles of Confederation, under which the now thirteen independent and sovereign states consented to join together their destinies, quickly demonstrated their failure. The central authority—in the Congress, for there was no executive—was given no revenue supply; it could not regulate foreign and domestic commerce; it had no judiciary with which to protect contracts and property rights; if the states wished to engage in monetary adventures by issuing separate bills of credit, it could not prevent them. Worst of all, there was no provision for debt management; and as the central authority found it impossible to fund its old debt or, indeed, establish a basis of credit for its own requirements, the life of pri-

continued on page 81



Steam Supply by B & W

Keeps Boiler Room Hospital-Clean at Hoffmann-La Roche

Pharmaceutical Manufacturer Meets Expanded Needs In Small Space

Spotless housekeeping, important throughout a pharmaceutical plant, was extended to Hoffmann-La Roche's boiler room at Nutley, New Jersey, when two new B&W units were installed. The new boilers meet expanding plant needs in a small space. They also take wide load variations in stride —on less fuel. Steam plays a multiple role in processing this famous line of pharmaceuticals, and the B&W Boilers provide a dependable, low cost supply of clean, dry steam.

No matter how you use steam, for processing or only for heating; no matter how large or small your demand is, it will pay you to look at your steam costs. You'll be surprised how much money you're burning. And that's the money that really matters — not the initial cost of the boiler.

Most boilers consume their initial cost in fuel every year. During the normal life expectancy of many boilers, the fuel bill can amount to several million dollars. Unless it is well-engineered, well-serviced, and well-maintained, the efficiency of a boiler can drop off 2 or 3 per cent or even more. This amounts to a substantial sum of money.

You save on your steam supply with B&W Boilers. That's why it pays to buy the best for your steam operations —B&W's top level engineering, long range sustained economy, and best performance. A national network of plants and engineers, supported by nearly a century of steam generating experience, is yours. Talk over your steam needs with B&W.

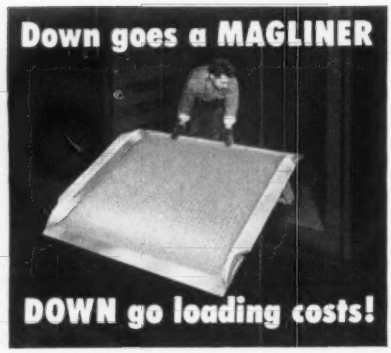
The most definitive work on the subject, "Steam, Its Generation and Use," covers all of the applications of steam to industry. It was written by the same B&W engineers who can bring you long range sustained economy for your steam operations. We will be glad to tell you how you may obtain a copy for yourself or your engineers. Just drop us a note on your company letterhead. The Babcock & Wilcox Company, Boiler Division, Dept. DR-8, 161 East 42nd Street, New York 17, N. Y.

G-837-1B

BABCOCK & WILCOX

BOILER DIVISION

MODERN STEAM MAKES YOUR PRODUCT BETTER AT LOWER COST



And they'll stay down with Magliner magnesium dock boards on the job! Magliners speed loading, eliminate dock congestion . . . get extra work from power trucks and other loading equipment. Magliners are magnesium-light—easy to put down . . . easy to move. No heavy lifting . . . no injury hazards. Men, loads and equipment move *fast, sure, safe*. Magliners are magnesium-strong, too . . . built to take it . . . safely handle loads up to 20,000 lbs. Low initial cost. Less maintenance. Dependable long-life service. *Economy* and *cost-savings* right down the line! Put all these advantages to work for you. Put Magliners on your dock!

Write for Bulletin DB-204

MagLiner MAGNESIUM DOCK BOARDS

MAGLINE INC., P.O. BOX 38, PINCONNING, MICH.
Canadian Factory: Magline of Canada Ltd., Renfrew, Ontario

weigh the modern way! cut your costs! use a

HYDROSCALE ON YOUR CRANE HOOK

ALL WEIGHING IS DONE ON YOUR CRANE HOOK

OUTMODES COSTLY CENTRAL WEIGHING STATION

COMPLETE LINE OF 110 MODELS NOW AVAILABLE

TYPICAL WEIGHING APPLICATIONS

Just a few of the many applications include—loading, unloading, batching, check weighing, foundry charging, production control, process control, checking inventory, and, protecting your equipment from overloading.

SAVE FLOOR SPACE!
SAVE MONEY!
SAVE TIME!

HYDROSCALES guaranteed—

to be free of defects in workmanship and materials, and accurate to ½ of 1% of the maximum dial capacity.

Write for descriptive literature explaining model features.

HYDROWAY SCALES, INC.

31286 Stephenson Hwy. • Royal Oak, Mich.
"The world's largest producer of crane scales"

DANGER: GRAPEVINE AT WORK

continued from page 46

harm. If it's a rumor that deserves impetus, help to spread it. If it's a rumor that can damage you, move immediately toward its correction. An unpleasant rumor generally moves more swiftly than a pleasant one, and it reaches the flood stage fast.

2. *Establish regular channels for the handling of rumors.* The part-time, off again, on-again letter hasn't the impact or the acceptance of the regular, established letter. Its appearance is always timed to crisis. Build your listenership in times of harmony, and you'll have it in times of turbulence. This goes for plant and office bulletin boards, supervisory newsletters, and other accepted devices of employer-employee communication, as well as for management newsletters and company magazines or newspapers.

3. *Utilize all channels of oral communication.* Basically this means supervisors. It can also include plant reporters of the employee publications, employee activity groups, etc. Your interest in rumors is that of the person who seeks only to keep the record straight. There is nothing to be ashamed of in that.

4. *Develop and maintain good relations in the community.* This involves the press, the TV and radio stations, and the community's thought leaders and opinion-molders. A reputation for cooperation and forthrightness is hard for even the best rumor mill to grind to destruction.

5. *Try to keep answers coming to questions.* The unanswered question in a shop is an irritant of high abrasive quality. Set up the structure so that employees (a) find it convenient to ask questions, and (b) get replies promptly and fully. A postage-prepaid card, for example, may be mailed with the newsletter or employee paper asking for questions and suggested areas of contents coverage. Quizzes can be conducted among plant personnel, with answers posted on bulletin boards. Such "spot news" as occurs around the plant can be handled through "Flash!" bulletins posted promptly on bulletin boards, giving enough details to leave little room for conjecture. Public address systems are fast rumor-adjusters. "Do You Know?" and "It's A Fact!" bulletins, posted on bulletin boards, can help keep the score straight.

6. *Speed up internal management communication, eliminating time-consuming "approval" procedures.* Many a rumor has died on the vine because management got there in time. Eliminating too much checking with the higher-ups may be your salvation as early as tomorrow.

7. *Finally, you might consider growing a "grapevine" of your own.* Some managements shy away from this suggestion, because it implies to them spying on their own people. The more practical members of management, however, believe that it is essential these days to have a pipeline into the plant—a two-way transmission system for the dissemination of facts, with a built-in drainage unit for the elimination of vicious rumors. If you don't hear the rumors, you can't do much to correct them. And if, without going to the lengths of setting up an actual internal espionage system, you can discreetly manage to keep informed of the major items that are traveling over the grapevine, you may some day save the company a lot of grief.

Next to management silence, the finest lubricant for the rumor mill is failure to move quickly. The company which ponders its action too long generally finds that the grapevine has already arranged its decision for it. It could happen to your company—and the damage could be serious. But it doesn't have to happen. Where good two-way communication exists, the grapevine has little opportunity to thrive. END

"You're in fine condition for a man of 55 . . . unfortunately, you're only 37."

Keep deliveries on time! (His boss has The Hertz Idea)

What do you deliver? Whatever it is, you can help yourself to the most dependable delivery service when you lease trucks from Hertz!

Hertz long-term truck leasing service affords all the advantages of private ownership without the worries. It provides complete release of capital investment. Hertz pays full cash value for your present trucks and replaces them, when necessary, with modern GMC or other sturdy trucks. That's The Hertz Idea!

What's more, Hertz furnishes trucks engineered for the job, properly insured, expertly maintained, painted and lettered to your specifications, washed, gassed, greased, oiled, garaged—in fact, Hertz furnishes everything but the driver!

You only pay for trucks you need, thus, waste of idle trucks is ended. And when an extra is needed, it is provided immediately. One weekly bill gives a complete, accurate cost record. Overhead goes down. New tax advantages result. So call us. A free survey of your truck needs is available on request. We're listed under "Hertz" in *alphabetical* phone books everywhere! Hertz Truck Lease Service, 218 South Wabash Avenue, Chicago 4, Illinois.

Most experienced...by far

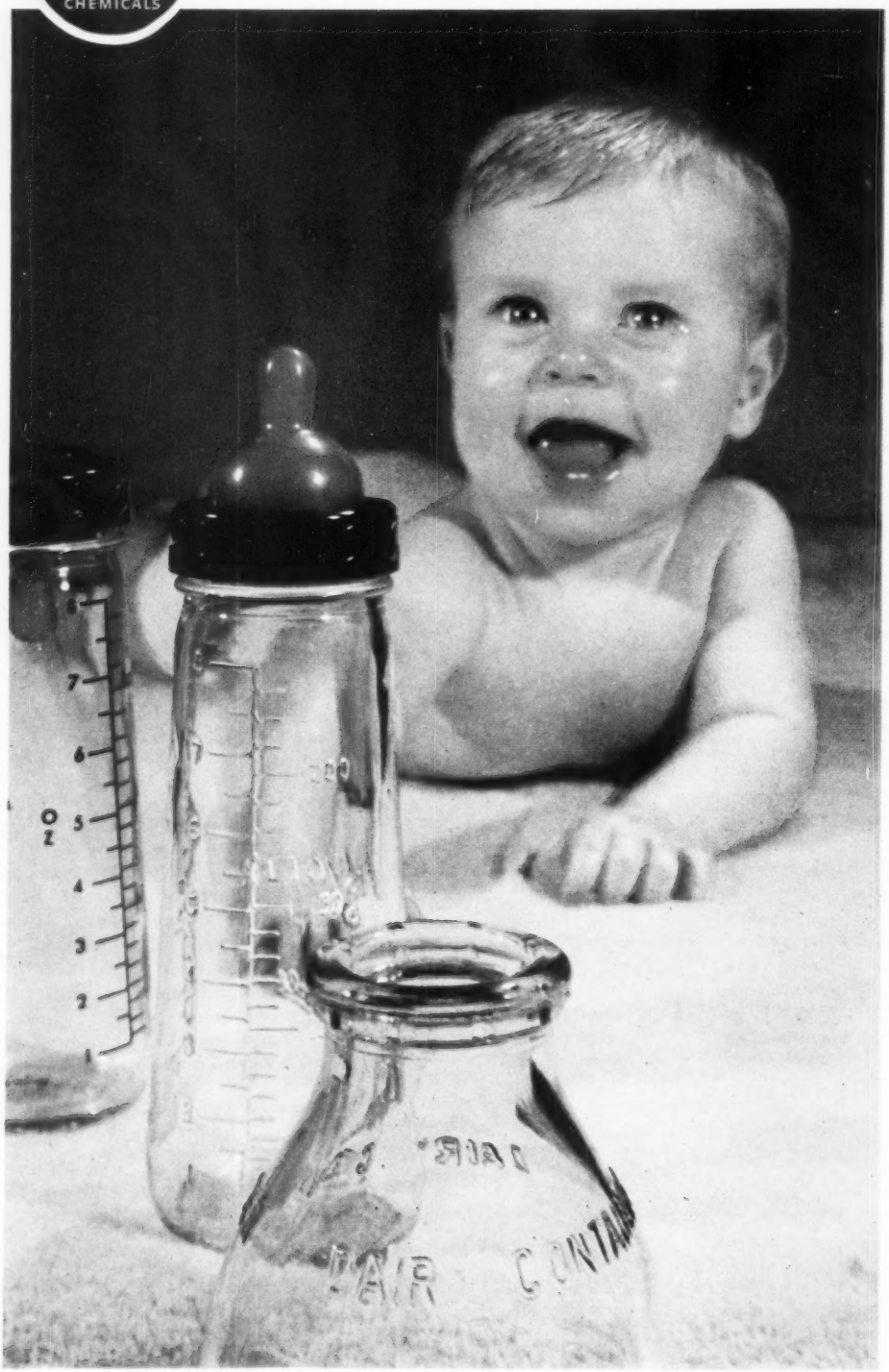
HERTZ

Truck lease service

Hertz furnishes modern trucks of any type or size!

To keep her pink-cheeked and pretty . . .

32,285 glass



1 She'll see plenty of glass in her life span. Her first food, her first drink of water, her first hypodermic will come in glass containers—guarded against contamination. As she grows up, she'll be introduced to more and more glass. In her own home, in her motorcar—on planes, trains, and ships—modern miracles of glass will help her live better . . . miracles made possible by modern glassmakers' continuing research, and by co-operative suppliers like Wyandotte.

containers

From baby bottle to bath salts, she'll use safe, healthful glass containers all her life (32,285 in all) . . . and Wyandotte chemicals will play a part!

REMEMBER when you first met up with a glass container? Probably not — most likely, you were a babe in arms.

But, like this young miss, you'll use glass containers all your life . . . 32,285 of them in all. Safe, clean — ideal for everything from medicines to milk — there's no other container quite like them.

Today, American manufacturers are producing glass containers at the rate of over 20 billion units* a year. It's *big* business; and — as supplier of chemical raw materials and technical assistance — Wyandotte is playing a big part in it.

But that's not unusual . . . it's true in nearly every booming industry you can name. Wyandotte chemicals — organic and inorganic — play important roles everywhere.

Can we help you in *your* business? Contact us, giving as much background data as possible. *Wyandotte Chemicals Corporation, Wyandotte, Mich. Offices in principal cities.*

*Source: U. S. Dept. of Commerce

Wyandotte
CHEMICALS

Pacing progress with creative chemistry

2 **Glass sells** — records prove it. This popularity of glass containers dates back more than 4000 years to the first crude vessels of ancient Egyptians — and it's still the most versatile and indispensable method for packaging ever devised. Just tour any grocery, drug, or department store and specially note the greater sales appeal of products merchandised in glass.

3 **Glass protects** her health, and yours, too! Nothing can get into a glass container to spoil the contents — change the composition, or alter the color. For, an important benefit of glass is its purity. And its clarity lets you see what you buy . . . two mighty compelling reasons to choose medicines, cosmetics, chemicals, foods, and beverages in sparkling-clean glass!

4 **Wyandotte works closely** with glassmakers, furnishing vast quantities of soda ash for making glass containers, window glass, windshields, television tubes, fishing rods, insulating glass, and carboys. In fact, Wyandotte is a familiar name to nearly every industry that uses chemical raw materials, from soda ash, bicarb, and calcium carbonate to chlorine and caustic soda.

How Air Freight creates new markets for Nature's most exotic perishables

Orchids of Hawaii Sales Promotion Manager, George Matsuda, inspects Cargoliner shipment of tropical flowers and foliage.

Modern business firms are generally aware of the speed advantage of Air Freight. But few have demonstrated its marketing efficiency more dramatically than Orchids of Hawaii, New York.

"People are amazed that real orchids can be grown, corsaged, packed and shipped by air to destinations thousands of miles away for as little as 15¢," says Orchids of Hawaii President, Kei Yamato. "Air transportation has opened vast new markets for the 50 items in our line."

Even non-perishables go Air Freight. "By surface carrier, our money would be tied up 3 to 4 weeks," explains Mr. Yamato. "Also, via United, we ship from Honolulu direct to our four U. S. distributing centers."

More and more firms find economic justification for regular shipments via Air Freight in values not always apparent in the tariff book. And United offers special advantages: Reserved Air Freight, door-to-door service, the only all-DC-6A Cargoliner fleet. Ship United!

Examples of United's low Air Freight rates

	per 100 pounds*
CHICAGO to CLEVELAND	$4.78
NEW YORK to DETROIT	$5.90
DENVER to OMAHA	$6.42
SEATTLE to LOS ANGELES	$9.80
PHILADELPHIA to PORTLAND	$24.15
SAN FRANCISCO to BOSTON	$27.00

*These are the rates for many commodities. They are often lower for larger shipments. Rates shown are for information only, are subject to change, and do not include the 3% federal tax on domestic shipments.

UNITED AIR LINES

Door-to-door service

SHIP FAST...SHIP SURE...SHIP EASY

For service, information, or free Air Freight booklet, call the nearest United Air Lines Representative or write Cargo Sales Division, United Air Lines, 36 South Wabash Avenue, Chicago 3, Illinois.

HOW TO DEAL WITH DEALERS

ALSO: ***Surveying salesmen's time; guide to profitable price-cutting***

MANUFACTURERS across the country are making determined efforts to get closer to their dealers. To date, one of the most effective of these efforts has been the Retailers' Advisory Council set up by Bell & Howell Co., Chicago, Ill.

Carl Schreyer, vice president-marketing for this $46 million (sales) manufacturer of photographic, sound, and electronic equipment, says: "We get unprecedented volumes of unvarnished truth and helpful information during the four days the Retailers' Advisory Council meets each year. It is a time to review, with the help of people who sell our products daily, what we have done during the past year and what we should do during the coming year."

Besides providing valuable market insights, retailers who look with favor on the manufacturer can give his products the extra push needed in a highly competitive market. To get these and many other benefits, Bell & Howell's top management, including President Charles H. Percy, sits down with sixteen representative dealers each year.

And they are representative in the strictest sense of the word, for they are elected by the dealers themselves. A few months before each meeting, the company sends ballots to all 8,000 retailers handling the company's lines. In 1955, the first year the plan was tried, about 1,200 retailers sent back the marked ballots. This year votes came from 2,500.

Before they attend the meeting, the representative-dealers receive a barrage of suggestions and complaints from their "constituents" to be presented to top management. Then they help to plan the agenda for the four-day meeting, which runs on an 8:30-to-5:30 schedule.

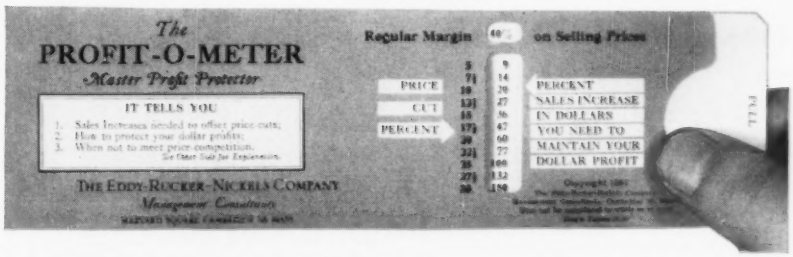
The meeting begins with a brief greeting by Percy or Executive V. P. William E. Roberts, and a statement of objectives. Next, the council learns how the meetings are run and is impressed with the importance of the agenda. From then on, as each subject is laid on the table, few feelings are spared.

Moderator Schreyer asks such questions as:

- "What do you think we should charge for this camera? Why?"
- "How often should salesmen call

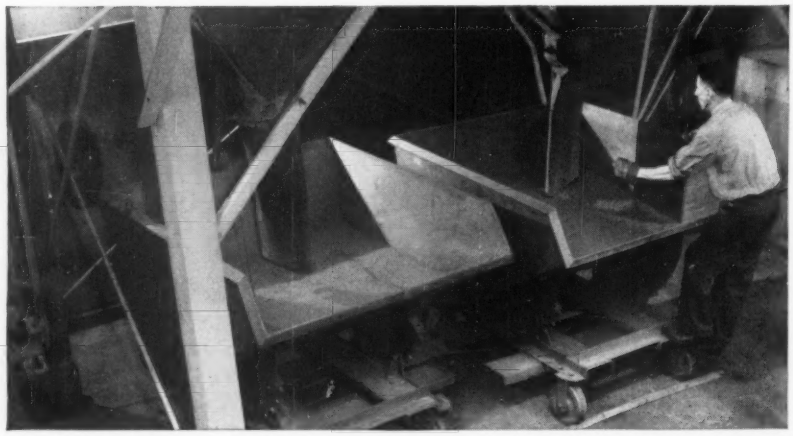
Hub ads cause hubbub

This new advertising medium, now being tested on fifty cars in Trenton, N. J. replaces hubcaps. It's an eyecatcher, since the disks (which are attached to the axle) don't turn with the wheels. The producer of the disks, Auto Ad Disk Co., Trenton, suggests that company cars and trucks could make good use of the floating saucers.


The
PROFIT-O-METER
Master Profit Protector
IT TELLS YOU
1. Sales Increases needed to offset price cuts;
2. How to protect your dollar profits;
3. When not to meet price competition.
See Other Side for Explanation.
THE EDDY-RUCKER-NICKELS COMPANY
Management Consultants
Regular Margin
on Selling Prices
PRICE CUT PERCENT
PERCENT SALES INCREASE IN DOLLARS YOU NEED TO MAINTAIN YOUR DOLLAR PROFIT

Handy guide to price-cutting pitfalls

If you're selling your product at a 30 per cent margin and you cut your price 10 per cent, you'll need an increase of 35 per cent in dollar volume to offset the price cut. This and similar calculations are done automatically on this new slide-chart available for $1 from Eddy-Rucker-Nickels Co., Harvard Sq., Cambridge 38, Mass.



Self-Dumping Hoppers speed waste handling operation

"Time was saved and expenses were cut," says Raybestos-Manhattan, Inc., when Roura Self-Dumping Hoppers were adopted for handling waste. In their Passaic, N. J. plant the many grinding operations performed on rubber, asbestos and abrasive products create dust which is sucked into giant dust separators. Caster-mounted Roura Hoppers under the separators receive the dust for disposal. When full, a Hopper is picked up by a lift truck, and carted to a waiting dump truck. The operator flips a latch and the Hopper automatically dumps itself, rights itself, locks itself. The mobile, maintenance-free Hopper is then ready for another load.

Roura Self-Dumping Hoppers are saving time and cutting expenses in many industries . . . handling hot or cold, wet or dry bulky materials.

ROURA Self-Dumping HOPPER

WANT MORE DETAILS? Attach this coupon to your letterhead and mail to
ROURA IRON WORKS, INC.
1404 Woodland Ave., Detroit, Michigan

cut costs!

make MASTERS electronically

Stenafax Low operating cost!
Low cost per copy!

This **ONE** machine does **THREE** office jobs.

prepares **offset paper plates!**

cuts **mimeograph stencils**

makes **single positive copies**

GET MORE OUT OF YOUR
PRESENT DUPLICATING EQUIPMENT

Exact masters, stencils or single copies of letters, legal papers, office forms, news clippings, etc. are made simply and rapidly by Stenafax. Only seconds required to load, unload, and push a button. The operator can do other work, as the machine operates and shuts off automatically. The entire operation is on the one machine, with no additional paraphernalia. It is electronic, fast, clean, accurate.

No chemicals
No powders
No developing

TIMES FACSIMILE CORPORATION
STENAFAX DIVISION, DR8
540 West 58th St., New York 19, N. Y.
Please send **Stenafax** brochure to

Name_____
Address_____
City & State_____

on you? Do they call too often?"
• "What can salesmen do to make their time more productive?"

"When the meeting is over," he says, "there is enough good information and so many important comments that it takes us another week to assign action priorities."

Many changes in marketing policies have come out of the three meetings held so far. Advertising content was revamped, while co-op advertising, not used since 1940, was begun again. The dealers advise on product trends—what products, features, and price levels consumers ask for. A number of their recommendations have been adopted, and some will affect products now in development. Guarantees, repair policies, sales aids, and many other factors have been affected by the give-and-take meetings.

Although he considers the Retailers' Advisory Council an important success, Vice President Schreyer doesn't advise every company to try it. "There are pitfalls as well as potential benefits involved in such a plan, and a company should not get involved in any sort of a retailers' advisory council unless it recognizes the pros and cons." He lists the rules a company should consider carefully before taking action:

1. Make sure that retailers understand that the council is designed to let them reach, at one time, all top executives of the company with which they are working.

2. Make sure that top management will let the retailers be heard. Retailers aren't interested in coming hundreds or thousands of miles just to hear a pep talk.

3. Give a fair hearing to whatever is said. If you plan no action on a suggestion, show why it isn't practical.

4. Give all dealers a chance to participate in the meetings. (This is why

Retailers' Advisory Council works out marketing problems with Bell & Howell brass.

the retailers who attend the RAC are elected by other retailers, not selected by Bell & Howell.) Also, set up your agenda on the basis of what the dealers request.

5. Let all dealers know the results of the meetings. And don't forget to follow up later with another report on the action subsequently taken as a result of suggestions made. If retailers get the idea that the council is a time-consuming, non-productive gesture, all the money and effort will be wasted.

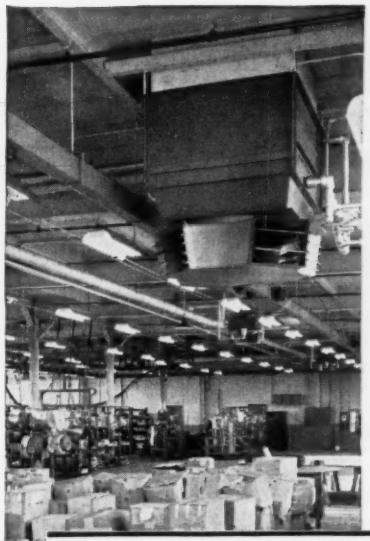
Survey of selling time

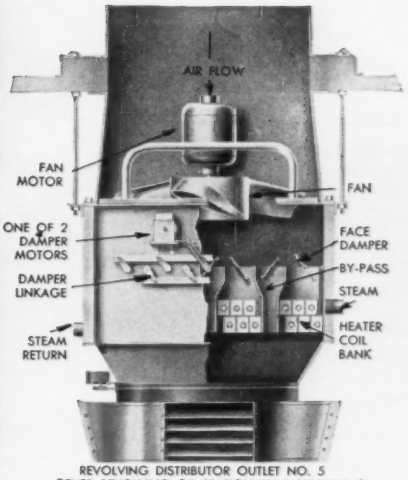
Time-study of the salesman's working day is still only a sometime thing. (See DR&MI, March 1957, page 48.) Only a handful of companies and a few colleges have attempted the chore. One of them is Pace College in New York City, where Dr. J. S. Schiff, Chairman of the Marketing Department, has been conducting systematic time-studies for the past few years.

In Dr. Schiff's latest survey, 36 students each spent a day with a salesman and kept a detailed record of how he used his time. The fifteen industrial salesmen studied sold products ranging from valves to lacquer. The number of calls they made in the selling day ranged from one (steel) to thirteen (business machines). More important than the number of calls, of course, is the amount of actual face-to-face selling time a salesman manages to get in during the day. For the industrial salesmen studied, this ranged from 35 to 240 minutes, with the average 145 minutes.

Business may not be on the road to Miltown, but it's certainly using pills for more purposes than ever before. For example, as part of a direct mail campaign Republic Steel recently sent aspirin tablets to home builders—to give them "temporary relief from headaches" until they bought Republic's steel kitchens.

Another pill gimmick has been dreamed up by a New York advertising service concern, which sells Salesman's Success Pills (made of candy) as a prop to pep up sales meetings. This is all very well for the salesmen, but it won't help soothe the frayed nerves of sales managers. They ought to have a pill of their own—Damitol. —T.K.





REVOLVING DISTRIBUTOR OUTLET NO. 5
—OTHER REVOLVING OR STATIONARY DISTRIBUTORS AVAILABLE TO SUIT REQUIREMENTS

MAKE-UP AIR... or COMFORT VENTILATION

Wing FAS Heaters deliver fresh air at room temperature... with no danger of freezing

Manufacturing processes frequently create heat, fumes, vapors, dust, etc., which must be removed at the source by fans or exhaust systems, and must be replaced, both to permit the exhaust systems to function efficiently, and for the comfort of the workers. For when a building is "starved for air", cold air will rush in through cracks and crevices, trying to eliminate the partial vacuum, and consequently causing much discomfort.

Wing FAS Heaters are designed to deliver to the building an amount of air equal to that which is exhausted, and at just the right temperature. The coils of these heaters cannot freeze, for steam is at full pressure at all times. Temperature is controlled by dampers on heating coils and by-pass passages.

Send for bulletin. Use the coupon.

L. J. Wing Mfg. Co.

315 Vreeland Mills Rd., Linden, N. J.
Factories: Linden, N.J. and Montreal, Canada
In Europe: WANSON, Haren-Nord, Brussels, Belgium

· Wing ·
(FRESH AIR SUPPLY)
FAS HEATERS

WING REVOLVING HEATERS

WING DRAFT INDUCERS

WING FANS

WING TURBINES

L. J. Wing Mfg. Co., DR-8
315 Vreeland Mills Rd., Linden, N.J.
Please send copy of Fresh Air Supply Bulletin FAS-1.
Name.....
Firm.....
Address.....
City.....Zone.....State.....

WHY INDUSTRY IS

The man who couldn't retire

This man—let's call him Jim—had sold out his business for a tidy fortune. He had all the money a man really needs but in a few months he got restless. The only business he knew was closed to him by the terms of his sales agreement. So he came to us for ideas.

We told him of a city on our lines that needed a merchandise warehouse. We also knew of a building well suited to this use that could be bought at a fair price. Jim looked into it and it looked good.

"The only trouble," he said, "is that I don't know a blasted thing about warehousing."

So we fixed that, too!

We knew another man—let's call him Bill—who had a very successful warehousing operation in another city. We brought them together and they hit it off fine.

Bill went over the proposed new warehouse and liked it so well he offered to take a minority interest in the project and help run it till Jim learned the ropes.

The warehouse is doing so well they have recently built a large addition.

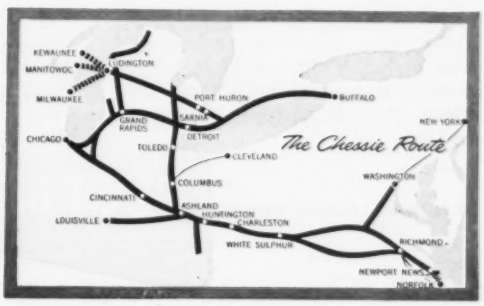
Of course this is an unusual case, but as a service organization, we welcome doing the unusual and performing other services for any business considering a new location. C&O's Industrial Development Department has an encyclopedic knowledge of the territory that Chesapeake and Ohio traverses—its geography, its people, its resources, its opportunities. Our function is to give you the facts.

All inquiries are handled in strict confidence. If you wish, we can arrange to have negotiations with owner, zoning authority or other civic body handled anonymously. When you call upon us, you will receive every assistance from our staff of experienced industrial specialists at no cost to you.

Write for new booklet describing industrial resources and opportunities in C&O territory. Address: Wayne C. Fletcher, Director of Industrial Development, 3203 Terminal Tower, Cleveland 1, Ohio.

Chesapeake and Ohio Railway

SERVING: VIRGINIA • WEST VIRGINIA • KENTUCKY
OHIO • INDIANA • MICHIGAN • SOUTHERN ONTARIO



Furniture's on the move... with TUFFLEX

—on the move from retailer's floors to customers' homes, that is! This unique cellulose cushioning—TUFFLEX®—is helping to speed furniture sales and build retailer's profits.

And why not? In dinette chairs—in upholstered furniture of all kinds—Tufflex makes possible a better looking product with a quality "feel." Every day Tufflex is padding and cushioning more backs, seats, decks, loose cushions, arms, and trim strips. Tufflex doesn't bunch, doesn't sag, cuts with firm, true edges, stays in place, is uniform in texture.

You can get Tufflex and the new Tufflex non-woven fabrics in a wide variety of types and thicknesses with widely varying characteristics. Tufflex products can be cut to intricate patterns...can be laminated with various backings.

Tufflex products are solving many a knotty problem for industries today. Perhaps Tufflex can help YOU—complete information and samples are yours for the asking. Wood Conversion Company, Dept. 239-87, First National Bank Building, St. Paul 1, Minnesota.

...and for handbags, luggage

—as well as other padded products, Tufflex non-woven Fabrics help create a smooth, luxury look that appeals strongly to customers. These easy-to-handle non-woven fabrics, used under plastic or other coverings, make possible the trim, tailored lines that spell quality. Tufflex Fabrics also make excellent fillers and pads for use in garment manufacture.

FOR CUSHIONING...PROTECTIVE PADDING... **TUFFLEX®** THERMAL INSULATION...SOUND ABSORPTION AND DEADENING...MOISTURE ABSORBENCY OR REPELLENCY

Executive BOOKSHELF

Paper and paperwork

CASE STUDIES IN RECORDS RETENTION AND CONTROL *by Jewel Moberley, Elizabeth D. Holbrook, William L. Rofes, and Herbert F. Klingman. Controllership Foundation, Inc., 2 Park Ave., New York 16, 455 pages, $7.50*

These case studies cover the programs that have enabled 13 companies to dig themselves out of the mass of paper that accumulated over the years, prevent too great a build-up in the future, and insure that whatever older documents are retained are kept readily accessible.

PRACTICAL OFFICE TIMESAVERS. *Compiled by Arthur H. Gager. McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, 305 pages, $5.*

Mr. Gager, who is staff director of the Technical Division of the National Office Management Association, has brought together 525 paperwork shortcuts contributed by members of the Association, ranging from time-saving accounting methods to simple gadgets that will make paper-handling easier. Illustrations are provided where necessary to make the ideas clear.

Practical Office Timesavers supplements a similar book NOMA compiled in 1947, the *Manual of Practical Office Shortcuts.*

No shortage of engineers?

THE DEMAND AND SUPPLY OF SCIENTIFIC PERSONNEL *by David M. Blank and George J. Stigler. National Bureau of Economic Research, Inc., 261 Madison Ave., New York 16, 200 pages, $4.*

This book will puzzle some people and infuriate others. In brief, the authors suggest that the much-publicized shortage of engineers does not really exist. If there were a severe continuing shortage, they point out, engineering salaries would have risen relative to the earnings of the population as a whole. Actually, the engineers have been losing ground—with the exception of the Korean War period—since 1939.

Can the last statement be true, with college recruiters upping the ante each time they visit the campuses? The explanation is simple enough: declining differentials between new graduates and more experienced men. Thus, between 1929 and 1953, salaries of engineers with less than a year's experience rose by more than 138 per cent; those of engineers with nine to eleven years' experience, by less than 80 per cent.

These figures have implications that industry cannot ignore. Have companies been hiring young engineers for work that could well be done by non-graduate technicians, and so creating an artificial shortage at the campus level? And what is likely to happen to the morale of the older engineers if differentials decline still further? Perhaps the present course of recruitment is the only one feasible for some companies, but it would do no harm for many of them to reexamine their policies.

Retiring to peace and prosperity

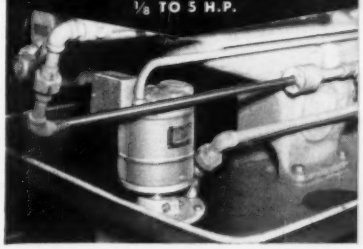
RETIREMENT: A NEW OUTLOOK FOR THE INDIVIDUAL *by Gifford R. Hart. Harcourt, Brace and Company, 338 Madison Ave., New York 17, 179 pages, $3.95.*

Mr. Hart, the author, retired at 56, and—despite some misgivings and difficulties along the way—has found life free of the 9-to-5 routine extraordinarily pleasant. His book describes what the man who is contemplating retirement can expect, and offers suggestions for happiness off the job. Refreshingly, he does not advocate hobbies as the main solution, or activity for activity's sake. Rather he points out that one of the principal pleasures of retirement is the freedom from compulsion and the demands of business.

INVESTING FOR RETIREMENT *by J. K. Lasser and Sam Shulsky. Business Reports, Inc., 2 East Ave., Larchmont, N. Y., 120 pages (paper covers), $3.*

Where you should put the dollars you are saving for retirement depends basically on your age and the amount of money you have available for investment, the authors

SPECIFY
GRAYMILLS *Superflo*
COOLANT PUMPS
⅛ TO 5 H.P.



You'll get...

★ Smooth, quiet performance
★ Better appearance
★ Better design
AT LESS COST

AVAILABLE TO JIC STANDARDS

For replacement and original equipment, 36 models. Top rated motors, complete interchangeability with other makes. Abrasive proof.

Send for new catalog —
135 *with interchangeability tables*

Designed and Priced for Machine Builders' Use
GRAYMILLS CORPORATION
3767 N. LINCOLN AVE., CHICAGO 13, ILLINOIS
WEST COAST 3721 MELROSE AVE • LOS ANGELES 29

ATTACHÉ CASE

by *Olympic*
with
DETACHABLE PORTFOLIO

. . . ideal for corporation executives and sales personnel. Combined overnite and business case with 5 compartments in detachable portfolio. Partition conceals clothing compartment and provides writing surface. Finished in handsome, virtually scuff-proof TOLEX. Saddle russet or brown.

OLYMPIC LUGGAGE CORPORATION
Kane, Penna.
Gentlemen:
Please send latest catalog and prices on the new Attache Case.
Name.....
Title.....
Company.....
Address.....
City.....State.....

Don't drop insurance protection when you add your profit and ship

When a shipment is made—title passes—and you create an account receivable. You are more certain of the end result—PROFIT—when you protect accounts receivable with Credit Insurance. That's why an increasing number of executives have decided that NO cycle of protection is complete unless capital invested in accounts receivable is insured by ACI. To learn more about Credit Insurance, call our office in your city, or write AMERICAN CREDIT INDEMNITY COMPANY of New York, Dept. 50, 300 St. Paul Place, Baltimore 2, Maryland.

Liquidity of capital is the prime responsibility of management. Protect your working capital invested in accounts receivable with

American Credit Insurance

of this book point out. Then they demonstrate how the theory works out by reference to case examples. Possible stock portfolios, annuity plans, income to be expected from Social Security, and company pension plans are examined.

Better interviewing

THE DYNAMICS OF INTERVIEWING: THEORY, TECHNIQUE, AND CASES *by Robert L. Kahn and Charles F. Cannell. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, 368 pages, $7.75.*

The "dynamics" of the interview are the psychological reactions of interviewer and interviewed, which affect both the amount and the validity of the information obtained. Dr. Kahn and Dr. Cannell, who are both psychologists associated with the Survey Research Center of the University of Michigan, show by case examples just how these reactions influence interview results, and offer pointers on the training of interviewers.

Ratios for business

RATIO ANALYSIS FOR SMALL BUSINESS *by Richard Sanzo. Small Business Management Series No. 20, Small Business Administration, Washington, D.C., for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D.C., 55 pages (paper covers), 25 cents.*

One way a small business—or a large business, for that matter—can take stock of itself is to examine operating and balance sheet ratios (the ratio of current assets to current liabilities or sales to inventory, for example) and see how the company stacks up against others in the same field. This pamphlet explains the ratios currently considered significant, lists the sources of ratio data for various industries and types of business, and explains how the individual business can evaluate the results of the comparisons it makes.

The churches look at labor

SOCIAL RESPONSIBILITIES OF ORGANIZED LABOR *by John A. Fitch. Harper & Brothers, 49 East 33rd St., New York 16, 237 pages, $3.50.*

Sponsor of this book is the National Council of Churches, which presents it as one of a series on ethics and economics. The viewpoint is friendly to organized labor, but many unions will not like all the ideas set forth.

Dr. F. Ernest Johnson, consultant for the series, points out in his introduction that the emphasis the Protestant Church councils have placed on labor's right to organize in the past—when that right was widely challenged—may have led to a somewhat one-sided attitude; and now that labor itself has become powerful more stress must be placed on its responsibilities. In pursuit of the two-sided view, Mr. Fitch not only reviews and condemns malpractice in unions but suggests that the time has come when labor should be willing to give up the union shop—though he does oppose "right-to-work" laws.

In brief

AUTOMATION IN BUSINESS AND INDUSTRY, *edited by Eugene M. Grabbe. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, 611 pages, $10.* Compilation based on lectures given at the University of California by a number of engineers and scientists, dealing with concepts, systems, equipment, and economics of automation.

THE OFFICE IN TRANSITION: MEETING THE PROBLEMS OF AUTOMATION *by Esther R. Becker and Eugene F. Murphy. Harper & Brothers, 49 East 33rd St., New York 16, 190 pages, $3.50.* Non-technical discussion of the possibilities of office automation, with emphasis on the personnel aspects of the changeover.

THE A. F. OF L. IN THE TIME OF GOMPERS *by Philip Taft. Harper & Brothers, 49 East 33rd St., New York 16, 508 pages, $6.75.* History of the Federation from its beginning in the 1880's to 1925.

THE WESTERN EUROPEAN MARKETS *compiled the J. Walter Thompson Company. McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, 287 pages, $18.* Statistics for the exporter.

HOW THEY HANDLE THEIR PERSONNEL: A STEP-BY-STEP COMPARISON OF OVER 100 ACTUAL PROGRAMS *by William L. Barton. Management Publishing Corp., 22 West Putnam Ave., Greenwich, Conn.* Survey of practices in New York State savings banks.

THE PROSPECTS OF NUCLEAR POWER AND TECHNOLOGY *by Gerald Wendt. D. Van Nostrand Company, Inc., 120 Alexander St., Princeton, N.J., 348 pages, $6.* A readable summary of developments in the nuclear field to date and future prospects, with a helpful glossary.

WORLD BALANCE SHEET *by Robert R. Doane. Harper & Brothers, 49 East 33rd St., New York 16, 260 pages, $10.* Comprehensive inventory of world resources by countries.

WOMANPOWER: A STATEMENT BY THE NATIONAL MANPOWER COUNCIL WITH CHAPTERS *by the Council Staff. Columbia University Press, 2960 Broadway, New York 27, 371 pages, $5.* Facts about the number of women in the labor force, the type of work they are doing, and trends in the employment of women.

CLIP THIS . . . to keep your trademark right in your customer's hand!

ZIPPO MANUFACTURING CO.

Dept. D-158, Bradford, Pa.

Please give me full information about business gift Zippos—prices in large or small quantities, time of delivery, opportunity to use color, and the help your design department will give us in making a beautiful and distinctive gift.

Name _____

Firm _____

Address _____

_____

Thousands of trademarks jostle one another for attention in today's market place. Make sure that yours is often seen! Have it engraved in rich, authentic colors on the satiny surface of a Zippo—as a business gift, or special award within your firm.

Then your message will flash into view 20 . . . 40 . . . 60 times a day, just as surely as each Zippo flashes into flame. Your trademark becomes a valuable *selling tool*, giving long, long mileage at very modest investment.

Whether your business is old or new, its special quality will be faithfully reflected by the special quality of Zippo. If anything ever goes wrong with a Zippo, we fix it free. No wonder Zippos become cherished lifelong companions—used proudly at business meetings . . . on social occasions and outings. And your trademark travels with them, always! Send the coupon now!

ZIPPO®

ZIPPO MANUFACTURING COMPANY, BRADFORD, PA.

In Canada: Zippo Manufacturing Co., Canada Ltd., Niagara Falls, Ont.

Genuine Zippo Fluid and Flints make all lighters work better.

EMPLOYEE RECRUITMENT A PROBLEM IN YOUR EXPANDING BUSINESS?

"Automating" your office procedures might provide one answer

Automation is now a practical means of increasing the *productivity* of *office personnel.*

Thus, the acute problem of finding new personnel for expanding operations may be largely met by upping the output-per-person through automation.

Moore Business Forms (the largest company in its field) has developed procedures with Automated Data Processing—or ADP—which have proved of value to both small businesses and large.

ADP contributes importantly to profits—not only by increasing the productivity of present personnel, but also by reducing errors, speeding work, improving employee morale.

Moore makes no ADP machines—simply analyzes your problem . . . plans the proper ADP system for *your business* . . . designs and manufactures forms needed for maximum efficiency.

Call the Moore man (he's listed in the telephone directory). Over 300 offices and factories across the U. S., Canada, Mexico, Caribbean and Central America. Or write Moore Business Forms, Inc., at Niagara Falls, N. Y., Denton, Texas, or Emeryville, Cal. No obligation, of course.

MOORE BUSINESS FORMS Inc

How to cut waste, curb explosions, clean air

Checklist for safety

An interesting and unusual safety quiz has been prepared by Crouse-Hinds Company to help you find potential explosion hazards. It's in the form of a dual folder with punched holes through which you mark the proper answer (yes—no—don't know) then look inside to check results. Sample questions (and watch out for those "don't know" answers!):

- Does your plant contain any of the combustible dusts which, in certain concentrations, could become explosive (starch, wood flour, pulverized coal, metal powders, and the like)?
- Have you begun using any new or different types of solvents, gases, or vapors in plant processes during the past year?
- Has any operation involving flammable materials recently been moved to a new location which was not previously electrically fireproofed?
- Has a fire insurance company made a thorough *electrical* inspection of your plant in the past two years?
- Is someone in your plant definitely assigned the responsibility of determining what explosion hazards actually exist—and what equipment should be used in each case to prevent electrically ignited explosions?

Fitting the bearing to the job

The old story of "for want of a nail . . ." certainly applies to the design and selection of bearings for industrial and consumer products.

A bearing looks like a simple component, but there are plenty of tricks to choosing the right one—and a tremendous selection from which to choose.

Today it's possible to get bearings that conduct electricity, or that insulate against it; bearings made of titanium or chromium carbide; or of nylon, sapphire, Teflon, glass, or ceramics.

The accuracy of today's bearings is astonishing, too. Bearing specialists can now supply precision balls that are held to a spherical accuracy as close as 0.000005 inch.

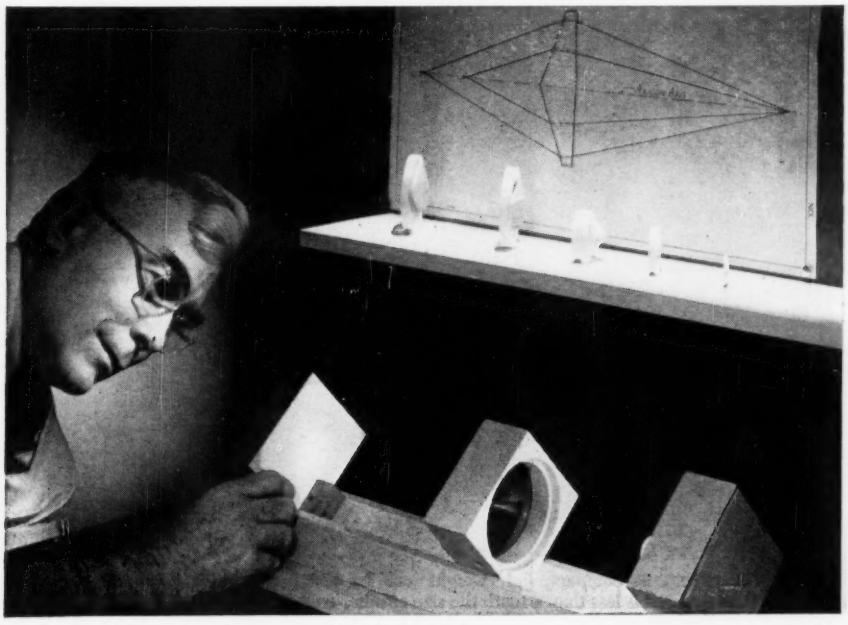
As for temperature range, you can get bearings that will operate at minus 400° or plus 1,500° F.

With a variety like this, it should be possible to meet almost any manufacturing or design need.

New ways to catch dust

Dust control is getting to be a really big problem for industry as more and more communities pass cleaner-air laws.

Authorities estimate that air pollu-



New lineup

One way to line up big parts and complex assemblies is to run a wire from one end to the other. Another is to use a TV set (see July, page 43). A third way uses lenses and mirrors. Telescopes, for instance, have long been employed for this purpose. But *axicon* optical systems like the one pictured here are quite new, and they're said to have a lot of advantages.

The axicon optical element used in the demonstration here, and the ones lined up on the shelf, are glass discs, flat on one side and very slightly conical on the other.

Unlike a lens, an axicon produces not one but a series of images spread out into space. Thus, it needs no focusing and is particularly adaptable to such jobs as assembly alignment. That's by no means the only way they can be used, though. Eastman Kodak is now making axicons of this type commercially with a range up to 75 feet, and is testing new types and sizes for such applications as checking the accuracy of gage plates and guiding the cutting head of a machine tool. Other possibilities: autocollimators, projectors, microscopes, telescopes.

Heavy Duty Bench Type
ALLEN
PUNCH PRESSES

POWERFUL
DEPENDABLE
ECONOMICAL

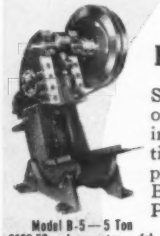
Model B-2-A
2 Ton Half Press
$94.50 fob

164 Different
Model Combinations

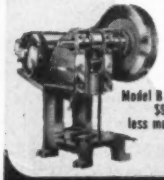
1 to 5 Ton
Capacities

Fully Guaranteed

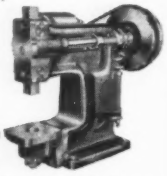
See your Supply Dealer or write for Catalog giving complete information, specifications and prices on our line of Bench Type Punch Presses.



Model B-5 — 5 Ton
$199.50 — less motor — fob



Model B-2 — 2 Ton
$97.50
less motor — fob



Model LTX — Special Duty
1 Ton — $89.50 less motor — fob

ALVA ALLEN INDUSTRIES
Dept. DR, Clinton, Missouri

Collect faster,
sell more —
at one and
the same time...

WITH NEW BUDGET PLAN
INSTAL-VELOPE®
COUPON BOOK
(Patented)

Instal-Velope — the budget payment combined coupon and envelope — adds *extra* convenience to budget payments . . . extra convenience that means *extra* profits to you. Users offer proof positive that complete account information on each coupon speeds customer payments — shrinks bookkeeping and overhead costs. *A different advertising message on each coupon sells, and keeps selling,* your products all year long. Instal-Velope Coupon Books are conveniently packed in units of 9 - 12 - 18 - 24. Try them. You'll collect faster, sell more — at one and the same time!

Effective Tools for Effective Management

WASSELL ORGANIZATION, INC.
Westport, Conn.

Phone CA 7-4111 or send coupon For Free Sample & Complete Details on Instal-Velope.

Name .....
Company .....
Address .....
DR
City ..... State .....

tion costs the United States more than $2 billion a year—and controlling it doesn't come cheap. Industry is now spending upwards of $300 million a year just for new dust collection equipment.

There's a bright side to the picture, though, in the number and variety of control units that are now being made available. Among the newest are Joy Manufacturing Company's *Microdyne,* pictured below, and Pulverizing Machinery's *Mikro-Pulsaire.*

The former is a wet-type collector, designed for incorporation right in the plant ductwork as shown.

The latter, the Mikro-Pulsaire, is a self-contained dry-type unit made up of cylindrical filter elements installed in a dust-tight housing. It has no moving parts and, according to its manufacturer, Pulverizing Machinery (a division of Metals Disintegrating Company), has shown collection efficiencies of better than 99.9 per cent.

Both units are available in several sizes and a selection of materials.

The Joy collector is made in either carbon or stainless steel in diameters from 11 to 48 inches and rated capacities up to 64,000 cubic feet a minute.

The Mikro-Pulsaire can be supplied with tubes either 4 or 6 feet long and with any one of several types of filter elements.

In brief

Packaged buildings that can be delivered within two or three weeks of the time the order is received are now obtainable from the Truscon Division of Republic Steel. Made in widths of 32, 36, 40, and 48 feet and heights of 12 or 14 feet, the units come complete with siding, roofing, windows, doors, and hardware. "All the user needs to supply," says Republic, "is the floor."

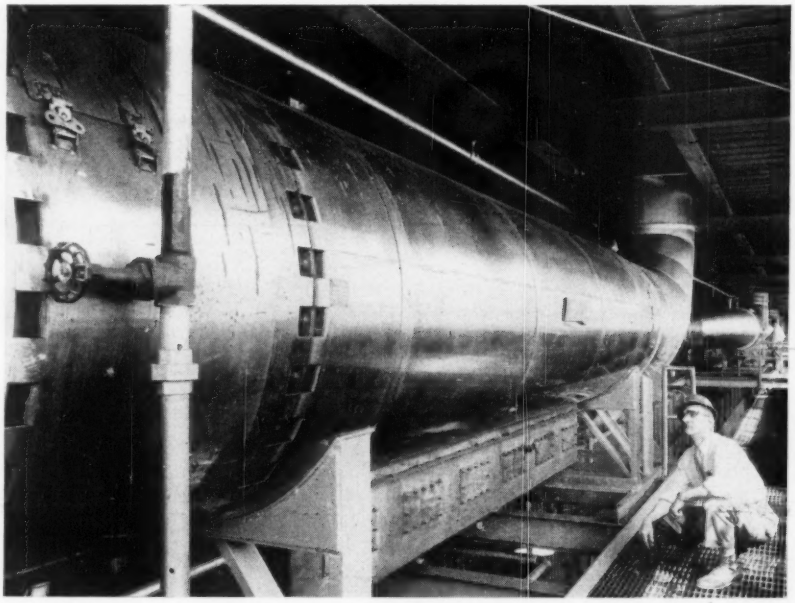
New tapes for binding, sealing, and trimming products and packages are obtainable from many sources.

General Tape Corporation, for instance, is making a polyethylene-cellophane tape that, it says, offers much greater dimensional stability than regular cellophane tapes and yet is competitive in costs. The company supplies this *Rajah* brand tape in widths of ⅜, ½, ¾, and 1 inch.

From Minnesota Mining come two electrical insulation tapes made of a nonwoven *Dacron* fabric reinforced with filament yarns. Known as *Scotch* brand Polyester Web, the tapes are supplied in widths up to 44 inches and lengths to 720 yards, and are said to be almost 50 per cent stronger than the polyester web tapes previously made.

Minnesota Mining is also making a gold-colored polyester film tape

continued on page 76



New dust collector is compact, light-weight, can be installed in plant ductwork. Joy Manufacturing says it is less than a tenth the size of other collectors of comparable capacity.

WESCODYNE® cleans as it disinfects

for less than two cents a gallon

FOR ALL AREAS

WESCODYNE is a completely new detergent-germicide that contains amazing "Tamed Iodine"®. Increases germicidal capacity three to four times and offers a much wider range of effectiveness than solutions containing chlorine, cresylics, phenolics or quaternaries.

WESCODYNE is also an excellent detergent as well as a powerful sanitizer and disinfectant. Provides fast cleaning action as it disinfects. A time and labor saver.

... all at a cost of less than 2¢ a gallon at use dilution!

WESCODYNE is nontoxic, nonstaining and nonirritating to the skin when used as directed. Further, it contains an exclusive "built-in" safety feature. In use, its amber color guarantees the presence of germicidal activity. When this color disappears, a fresh solution must be used. You're always sure of germicidal action!

WESCODYNE is used by leading hospitals throughout the U.S.A. Complies with U. S. Public Health Service recommendations. Leaves no odor. Recommended for almost any sanitizing or disinfecting procedure. Interested? Send the coupon.

LARGEST COMPANY OF ITS KIND IN THE WORLD

WEST DISINFECTING Company

WEST DISINFECTING COMPANY, 42-16 West Street, Long Island City 1, N. Y.
Branches in principal cities • In Canada: 5621-23 Casgrain Ave., Montreal

☐ Please send full information on Wescodyne.
☐ Please have a West representative telephone for an appointment.

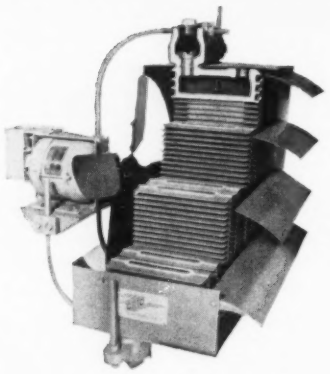
Name.....

Position.....

Mail this coupon with your letterhead to Dept. 1

*ends Unit Heater Maintenance Problems!

Your answer to unit heater problems general industries have discovered through common failures of copper, aluminum, and steel tube heat transfer surface. GRID condenser eliminates internal electrolytic corrosion — because all metals in contact with steam are similar. GRID also eliminates external corrosion — because the cast iron construction resists acid or other fumes in the air and eliminates the use of reducing valves where high steam pressure is used. GRID cast iron construction is tested to withstand steam pressures up to 250 P.S.I. . . . 450° temperature. GRID eliminates the high maintenance costs generally experienced with other types of condenser construction . . . eliminates replacement costs because GRID is built to last for years . . . uninterrupted service records of more than twenty years are common among GRID users in general industry. Study the illustrations and descriptions above and you will see why GRID gives you maximum heating performance always.



Cut-away view of Model 2000 GRID Unit Heater . . . note double steam chambers in each fin section and wide fin spacing . . . fins are cast integral with steam chamber.

Send for the complete story on GRID Unit Heaters, GRID Blast Heaters, and GRID Radiation for industrial plant use . . . it is contained in GRID Products Catalog No. 956. Write today for your copy.

D. J. MURRAY MANUFACTURING CO.

Manufacturers Since 1883 • WAUSAU, WISCONSIN

REPRESENTATIVES IN ALL PRINCIPAL CITIES

(*Scotch* brand No. 850) which, the company says, can be used in place of gold plating or brass trim on both packages and products.

For heavy-duty strapping, bundling, and tear-stripping, Dutch Brand Division of Johns-Manville has a 250-pound (tensile strength) pressure-sensitive, vinyl-backed tape, reinforced with glass fibers. The standard color of this tape (No. 400) is tan, but other shades can be made.

New lubricants are available for hot-working titanium, special alloy steels, and other metals which are subject to oxidation or gas absorption at elevated temperatures. These lubricants are dispersions of glass in isopropyl alcohol. According to Acheson Colloids, the supplier, the glass, applied at room temperature, fuses to the work surface when forging temperatures are reached, "providing a true hydrodynamic film during the forming operation." Two types are offered (glass fusion temperature: 1100° F, and 1300° F).

Spaced insulation, using structurally formed insulating shrouds set off from the component they protect by means of brackets or framing members, is now available for aircraft use and may suggest a new approach to design of industrial furnaces, reactors, and other equipment.

Royal Jet, Inc., which is making insulating shrouds of this type from aluminum, titanium, stainless steel, and other metals, notes that special insulation can be made in almost any size or shape, is relatively easy to install—and offers insulation by the air gap in addition to that which is built into the shroud itself.

Soldering is one of industry's simplest and best-known fastening methods. But adapting it to assembly of new devices like printed circuits (see January, page 45) still poses plenty of problems. They're well on their way to being solved, though, as the proceedings of recent technical society meetings prove. Two of the most comprehensive are:

RETMA Conference on Reliable Electrical Connections, Engineering Publishers, GPB Box 1151, New York 1, $5.

Symposium on Solder, American Society for Testing Materials, 1916 Race St., Philadelphia 3, $3.

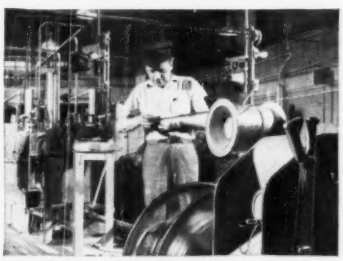
—A. R. G.

more news on page 78

THE LEADING COMPANIES EVERYWHERE ARE ADOPTING COPYFLEX ONE-WRITING METHOD!

Copyflex Desk Top Model 110 copies originals 11" wide by any length, makes up to 300 letter-size copies per hour. Only $555. Other models available to copy originals up to 54" wide.

Beatrice Foods Co., producers of famous Meadow Gold and La Choy Brand Foods, uses Copyflex to speed and simplify sales reports and accounting paperwork. New entries are posted on originals of cumulative reports, and copies are mechanically made without slow, costly rewriting and retyping of previously recorded data.



National Electric Products Corporation, one of the country's leading manufacturers of electrical wiring materials, uses Copyflex to reproduce accounting reports directly from master work sheets. Variable information is added or changed on the masters of periodic reports; copies are then mechanically produced without expense, loss of time, or inaccuracies of clerical copying.

You, Too, Can Smash the Big Paperwork Bottleneck!

Everywhere, alert companies like those described here are simplifying and speeding major business operations with the revolutionary one-writing method made possible by modern Copyflex copying machines. You surely can, too!

With Copyflex, you write basic information only once—subsequent paperwork needed to complete any systematized business operation is mechanically accomplished with Copyflex without costly, time-consuming clerical copying. This frees personnel for other important work, gives you tighter control of operations, saves thousands of dollars.

Copyflex machines are clean, odorless, economical—letter-size copies cost less than a penny each for materials. Copyflex will fit readily into your present systems. Mail coupon today—it can mean important savings for you!

BRUNING Copyflex

Offices in 38 Cities of the U.S. and Canada

Copies anything typed, written, printed, or drawn on ordinary translucent paper —in seconds.

CHARLES BRUNING COMPANY, INC., CHICAGO

In Canada: Charles Bruning Co. (Canada) Ltd. 105 Church St., Toronto 1, Ontario

YOURS FREE! New 16-page booklet, "Shortcuts to Accounting"!

Charles Bruning Company, Inc., Dept. 81-DR
4700 Montrose Avenue, Chicago 41, Illinois

Please send me: ☐ information on the Copyflex process and machines, ☐ the free 16-page booklet, "Shortcuts to Accounting".

Name_____ Title_____

Company_____

Address_____

City_____ County_____ State_____

REVOLVATOR
GO-GETTER
The MOST COPIED
LIFT TRUCK
On The Market
EASIEST WALKIE-TRUCK TO OPERATE AND MAINTAIN EVER!
FINGER-TIP CONTROLS, INCLUDING DYNAMIC BRAKE TO ELIMINATE "PLUGGING" THE MOTOR GOING DOWN RAMPS, AND "ARTICULATED" CONSTRUCTION ADJUSTS TO UNEVEN FLOORS. STEERS EASILY, AND WORKS IN LESS SPACE BECAUSE OF THE DUAL WHEELS & DIFFERENTIAL DRIVE!
HOW ABOUT MAINTENANCE?
SNAP THE LATCH AND LIFT OFF THE COVERS - YOU DON'T EVEN TAKE THE MOTOR OUT TO GET AT THE BRUSHES, AND THE DISK BRAKE HAS A SIMPLE SCREW ADJUSTMENT
WRITE FOR OUR FREE TRUCK INDEX OF GO-GETTER ELECTRIC AND RED GIANT HAND LIFT TRUCKS
REVOLVATOR CO.
8702 TONNELE AVE., NORTH BERGEN, N. J.

MODERN INDUSTRY BOOKS

How to Make and Use Charts—*Effectively*

A practical guide to the use of modern graphic methods in business. Reduces the theory and practise of presenting facts in visual form to their simplest elements. It gives you direct, detailed, and thorough understanding of the *why* as well as the *how* of each step of the graphic method and process.

GRAPHIC PRESENTATION SIMPLIFIED

by R. R. LUTZ

For ten years, R. R. Lutz was General Statistician to the National Industrial Conference Board

256 pages 6¼ x 9¼, $4.

A MODERN INDUSTRY BOOK

It shows you how to make all kinds of graphic charts . . . how to use them . . . how to analyze a problem, select the equipment, and execute the graph or graphs best suited to the problem.

Dozens of illustrations point up the text.

Order from Book Department
Dun's Review and Modern Industry,
99 Church Street, New York 8, N.Y.

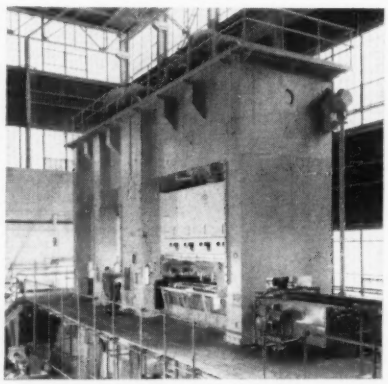
NEW METHODS

How to bridge the gaps

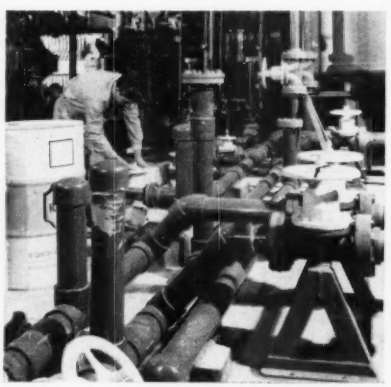
Moving materials, products, and even paperwork from one operation to the next can be nearly as costly and time-consuming as the operations themselves. Yet this short-haul movement rarely gets the attention it deserves. A distance of a few feet may seem trifling—but it's often well worth even a sizable investment to bridge these "small" gaps mechanically instead of depending on manual transportation. The photographs here show a variety of gaps and a few of the many methods that can be used to bridge them.

In the gear-shaving operation at right, for example, chutes, conveyors, and automatic positioning devices make it possible to feed gears to machines as needed, load, unload, and wash them, feed them to inspection units, and pass them on to the next operation without any manual handling by machine attendant.

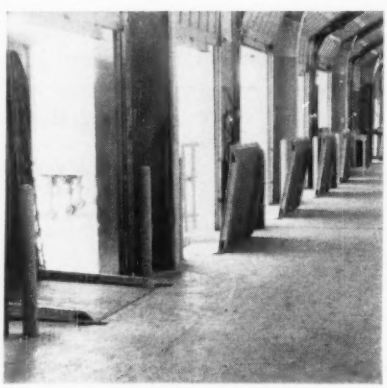
—A.R.G.



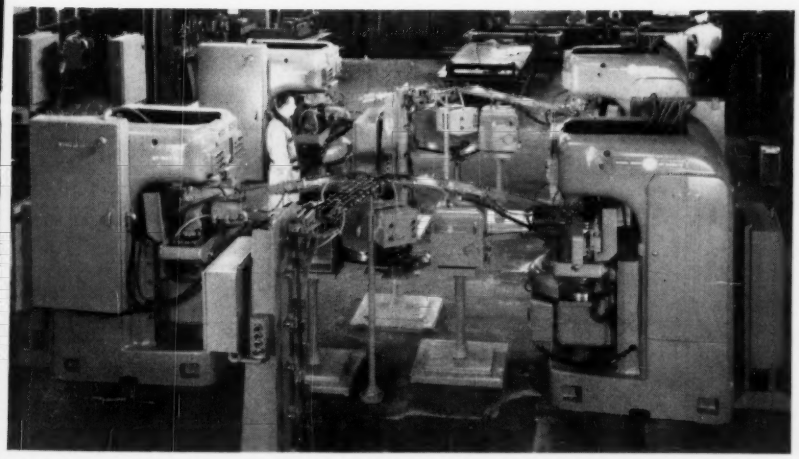
TRANSFER MACHINES combine several operations in a single unit, move parts along automatically from one step to the next, eliminate many separate handling operations and trips around the shop. This Clearing *Transflex* press produces clothes-washer tops and dryer tops at GE's Louisville appliance plant. Blanks are fed in at one end, emerge drawn, trimmed, and pierced at the other.



PLASTIC PIPE and valves bring flexibility to handling of liquid chemicals. Because these *Geon* PVC plastic units are easy to install, easy to move, piping layout can quickly be adjusted to process changes. Often-costly "temporary" handling systems need not be used. This installation is at Reheis Company, Berkeley Heights, N.J., supplier of compounds for cosmetic and pharmaceutical use.

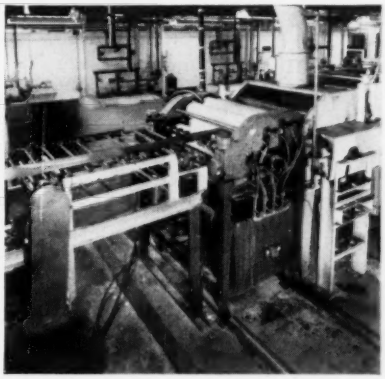


BUILT-IN DOCKBOARDS bridge another kind of gap—the gap between truck and loading dock. Made of magnesium and designed for minimum setback to take as little dock space as possible when not in use, they can be operated by an electric-hydraulic system that will adjust them automatically to truck or trailer floor levels. Magline, Inc., Detroit, is the supplier.



Chutes, conveyors, and automatic loaders integrate gear-shaving and inspection at National Broach & Machine Company. Machines are *Red Ring* rotary gear shavers and checkers.

ROLLING ROLLER COATER is readily moved into position on this new Parker Rust Proof surface-treatment laboratory "production line." Under usual laboratory conditions, metal strip would have to be removed from feeder unit, carried to roller coater, then brought back for next operation. Flexibility is particularly important here because company tries out many systems for customer application.



CORNER UNITS and connecting sections permit "straight-line" flow of cigarettes in P. Lorillard Company's Greensboro, N.C., plant. *Old Gold*, *Kent*, and *Newport* packages and cartons are flipped from one line to the next smoothly and continuously. Set-up makes it possible to conserve space, yet eliminate many separate handling operations that otherwise would be required.

PAPERWORK CONVEYORS can speed many office operations. This two-level belt system, planned by Designs for Business to meet the special needs of H. Hentz & Company, Wall Street brokers, is more elaborate than most offices would need. But even in "ordinary" office operations, simple belt, overhead chain, elevator, or pneumatic tube systems can often more than pay their way in time and labor savings.

wisdom comes with age

THE OLDER WE GROW, the more we know. This is not only true of people, but of companies, too . . . for a company is only as wise as the knowledge of its combined staff.

FOR 60 YEARS, PANAMA-BEAVER has matured steadily in its program to provide an "easier office-worker life." Since 1896, the company has learned to anticipate the needs of the commercial world before they arose. Among the first to recognize the important role of Vision-Engineered products, PANAMA-BEAVER's research department developed the easy-on-the-eyes Hypoint colored carbon papers plus Lustra Colorful Inked Typewriter Ribbons—especially created to harmonize with all paper stocks and letterheads. Another achievement—the Eyesaver, Parma Pearl and the NEW Ebony Unimasters (for spirit duplicating) with tinted jackets to avoid glare, relax the eyes, relieve harsh contrast and permit faster work.

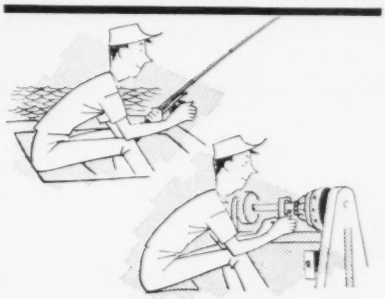
EXCITING THINGS have already been charted for PANAMA-BEAVER's next 60 years . . . as you will find out when you call your PANAMA-BEAVER man, "always a live wire!"

PANAMA-BEAVER Ribbons and Carbons

Coast to Coast Distribution

Since 1896—"The LINE that can't be matched."

MANIFOLD SUPPLIES CO.
188 Third Ave., Brooklyn 17, N. Y.



SATISFIED EMPLOYEES

ABOUND IN GREATER MIAMI

"1st in the Nation for Personnel Recruitment"

You boost your production efficiency when you produce in Greater Miami. Select your employees from a large local labor pool, and from the thousands who **want** to live here. Assure yourself of a higher quality of production with **fewer** rejects ...**greater** profits.

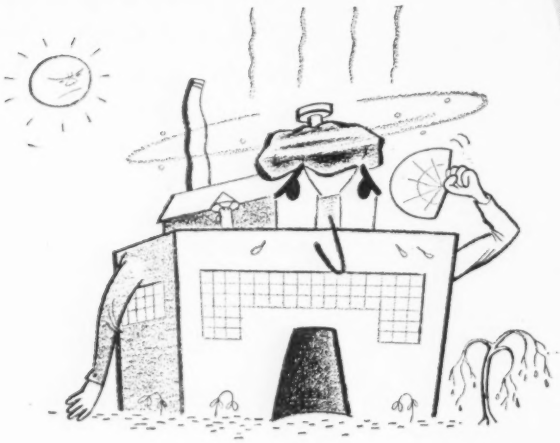
That's why we say, "There's a **Hard Dollar Reason** for locating Your Plant in Greater Miami."

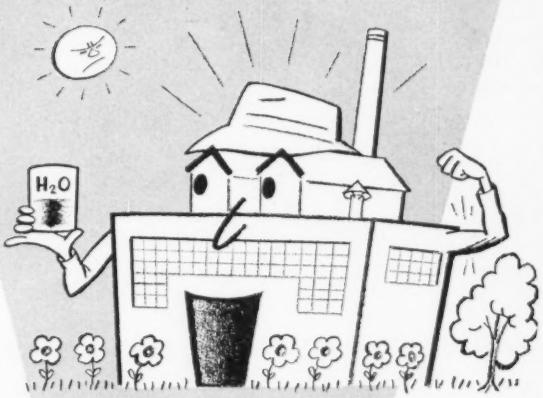
Send on letterhead for Fact File

GREATER MIAMI INDUSTRIAL DIVISION

Dade County Adv. Dept. 288 • 141 N.E. 3rd Ave.
Miami, Fla. • Ph. FR 1-3611

IF YOUR PROCESSING CALLS FOR WATER...





OUTSTATE MICHIGAN has the greatest fresh water supply in the world!

NOT ONLY IS OUTSTATE MICHIGAN LOCATED AMID THE GREAT LAKES BUT IT HAS THOUSANDS OF INLAND LAKES AND THOUSANDS OF MILES OF STREAMS.

UNDERGROUND WATER SUPPLIES ARE GOOD, TOO.

Plentiful fresh water is something Outstate Michigan provides *in addition* to the usual advantages offered by other leading industrial areas. If your plant needs water for processing or port facilities for shipping your products anywhere in the world, Outstate Michigan is the place for you.

And don't overlook the opportunities for good living and play in this Water Wonderland. You and your employees can enjoy boating, swimming or fishing within a few minutes' drive of shop or office.

For confidential information on specific industrial sites, talk with our Industrial Development Department.

CONSUMERS POWER COMPANY

An Electric and Natural Gas Utility Company Serving More Than 3,700,000 Michigan People

GENERAL OFFICES • JACKSON, MICHIGAN

ALEXANDER HAMILTON
continued from page 56

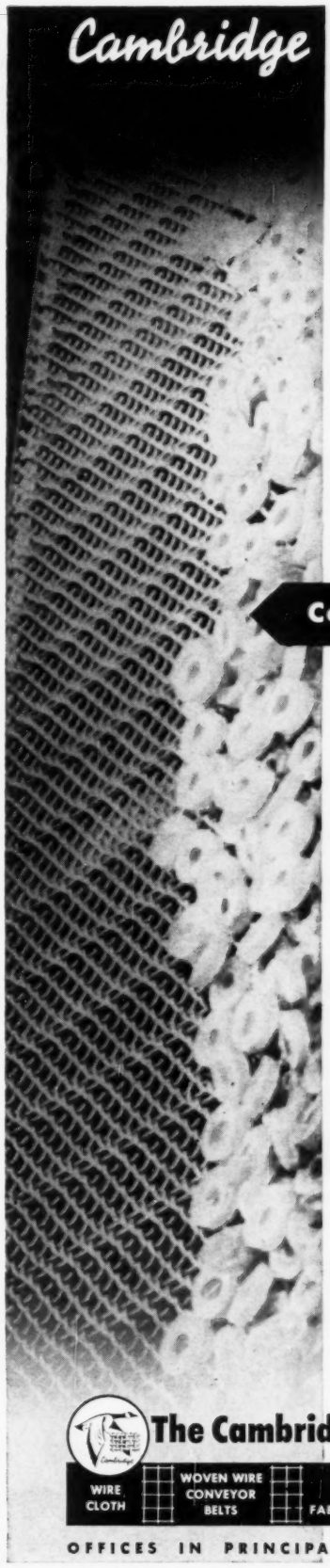
vate enterprise was fitful and uncertain. No foreign capital flowed into the country. Hoping to sustain themselves by making a quick fortune, many business men engaged in speculative ventures, notably in Western lands.

There was a brief period of prosperity at the end of the war as new channels of trade were opened up directly with Europe and the Orient and as men set to work to repair the destruction of military occupation. But by 1785 this was over. It was clearly evident—because of the unfavorable balance of foreign trade and the rise in public debt resulting from arrears of interest—that the new America was living beyond its means. In the face of its great promise—its vast, unsettled continent, its rich natural resources, the skills and energy of its population—the nation's prospects were dark. Without sound fiscal and monetary management at the center there was no future for America—perhaps there would be no United States of America at all.

Debtors in Control

During 1785–1786, as the economic engine faltered and serious recession set in, resort was again had to the direct action of the early years of the Revolution. Yielding to the clamors of agrarian debtors, seven of the states once more began printing paper money. With paper issues went demands for mortgage-moratorium laws and laws to write down the face values of mortgages themselves and to abolish imprisonment for debt. In Rhode Island, where the state's bills of credit became worthless, creditors were compelled by law to accept the legal tenders under pain of loss of citizenship. In Massachusetts and elsewhere, armed men began to march upon the courts to shut them down in order to prevent the discharge of contracts and property foreclosures. At the same time the states fell to wrangling among themselves about trade and its regulation, about boundaries, about land claims.

The inability of the central government to direct—indeed, its incapacity to keep its own house in order—occasioned a general alarm among responsible men, which was heightened by the refusal or failure of the



Woven Wire Belts
give you
fast, economical processing

Using woven wire conveyor belts to move products through all phases of your manufacturing operation helps speed processing and cuts costly batch handling. Food products, chemicals, plastics, metal parts, ceramics or glass can be treated faster and easier with a continuous belt-to-belt flow through the plant on woven wire belts. Controlled belt speeds through any type of operation . . . hot or cold, wet or dry . . . help increase product uniformity and maintain capacity production. EXAMPLE:

Continuous Cooling

MOVING BELT carries hot candy through cooling tunnel in a steady stream. Free circulation of air through open mesh speeds cooling process.

ALL METAL BELT cannot absorb odors . . . remains unaffected by processing solutions, 2100°F. or sub-zero temperatures . . . gives longer life because there are no seams, lacers or fasteners to weaken or break. Rust-proof alloys maintain sanitary requirements.

OPEN MESH also provides free circulation of heat or cold, free drainage of process solutions. Broken bits or chips of the product fall through the open mesh to maintain product uniformity.

SPECIAL RAISED EDGES or surface attachments are available to hold products on belt during inclined travel.

Cambridge Woven Wire Conveyor Belts are a practical and economical means of combining movement with processing in any type of industry . . . food, chemical, metal-working, glass or ceramics . . . on all types of machines for your own operation or for resale. Cambridge Woven Wire Conveyor Belts are made in any size, mesh or weave, from any metal or alloy to do the job you want . . . hot or cold, wet or dry. Call your Cambridge Field Engineer to discuss how you can get fast, economical processing with woven wire conveyor belts. Look under "Belting, Mechanical" in the *Yellow Pages*. Or, write for FREE 130-PAGE REFERENCE MANUAL.

The Cambridge Wire Cloth Co.

WIRE CLOTH | WOVEN WIRE CONVEYOR BELTS | WIRE CLOTH FABRICATIONS

Department Y,
Cambridge 8,
Maryland

OFFICES IN PRINCIPAL INDUSTRIAL CITIES

states to safeguard normal business activities and obligations and to protect their money supply. It was this that James Madison had in mind when he wrote to Jefferson (then in France) complaining that "the mutability of the laws of the states is found to be a serious evil." Because he knew this so well, Hamilton, as early as 1780, had pressed for energy in government and a demand that it recognize its responsibility through courageous fiscal and monetary policy.

It was in such a state of foreboding and great urgency that the Constitutional Convention of 1787 met. In the writing of the Constitution and in obtaining its ratification, Alexander Hamilton played a leading role. It was one thing to prepare a frame of government; it was another to devise the policies and accept the commitments that would breathe life into it so that it could endure and grow. This Alexander Hamilton was to do, accomplishing his great task by coupling governmental responsibility with the creation of a climate in which private ventures—American business—could flourish.

As Secretary of the Treasury during 1789–1795, and as the leader of the Federalist party during the whole of the decade of the 1790's, Hamilton accomplished all these things. At the same time, he kept the United States out of involvement in a war that was inflaming the whole world. In 1800, when Jefferson was elected and Hamilton was through with public life—he was then only 44 years old—this impressive program was fulfilled. The young American nation was safely established, its lines of growth clearly laid out for generations to come.

Faith and Honor

Alexander Hamilton's accomplishment in the Treasury has long been well known, but his insistence that the Treasury's role was the key one in government is better comprehended today than it was earlier in our history. He took office in 1789, and in three years his basic ideas were incorporated into law and have continued as the guide lines of sound public practice, not only in the United States but in all nations that seek to deport themselves with faith and honor.

In his first *Report on the Public Credit*, sent to the Congress in Janu-

CALL ON

The Toronto-Dominion Bank if you Plan to Expand your Banking Connections in Canada

Through its 470 branches, coast to coast, The Toronto-Dominion Bank is constantly in touch with every phase of Canadian business activity. In addition to regular banking functions it can provide you with reliable information on markets, distribution outlets and import-export details.

These and many other business-building services of The Toronto-Dominion Bank are yours to use. We are ready to put them to work for you *today*.

THE TORONTO-DOMINION BANK

Write, call or wire Mr. F. G. Cleminson Head Office, Toronto, Canada

New York Agency:
28 Broadway, New York 4, N. Y.

ary, 1790, Hamilton laid down his principle of good government:

> While the observance of that good faith, which is the basis of public credit, is recommended by the strongest inducements of political experience, it is enforced by considerations of even greater authority. There are arguments for it, which rest on the immutable principles of moral obligation. And in proportion, as the mind is disposed to contemplate, in the order of Providence, an intimate connection between public virtue and public happiness, will be its repugnancy to a violation of those principles.

Faith and honor: in this wise a nation, whether young or old, keeps its own house in order. It funds old debt, protects its revenues, provides for a sinking fund, lives within its means, and works hard at devising a mechanism for controlling credit and thus safeguarding the monetary supply. Thus, public and private credit—fiscal and monetary policy—are inextricably joined through the Treasury; and by the united efforts of government and private undertakings the "revenue and capital" (Hamilton's words—today we would say "income and wealth") of the whole people are advanced.

In this connection, private banks are to be established. Government is to help them and the economy by using the banks as depositories. Government also is to create a national bank (by incorporating it and assisting in its capitalization) that is to participate in the regulation of the rise and fall of private credit. If the government's own money is based on the precious metals (and Hamilton was responsible for this momentous commitment on the part of the United States), the national bank can defend the country's reserves and also require that the bank notes of the commercial banks be redeemed in specie. The Treasury—in part assuming a central banking function, in part cooperating with a national bank taking on other duties of such an agency—is at the vital center of the economy.

If the "revenue and capital" of a nation are to grow, if the "national and individual welfare" is government's leading concern, then business enterprise must be fostered. To this question Hamilton turned in his famous *Report on Manufactures* (1791), one of the great public documents in our history and, in fact, one of the leading exercises in statecraft of all time. Congress did noth-

The RAYMOND CORPORATION
4618 Madison St., Greene, N.Y.

NAME TITLE

COMPANY

STREET

CITY STATE

Please send me your new "User's Report" describing the handling of _____ (PRODUCT)

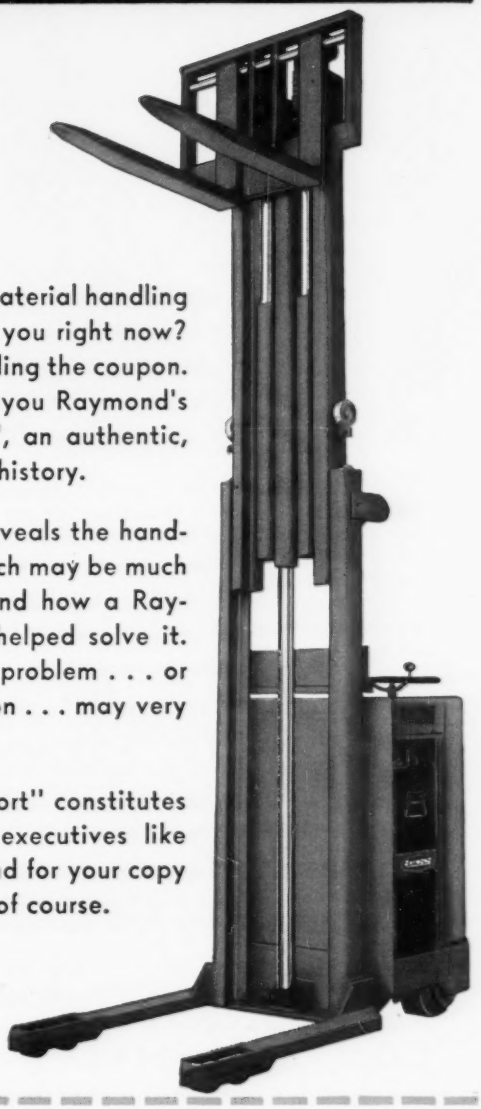
CLIP & MAIL THIS COUPON

Before you buy another electric truck . . .

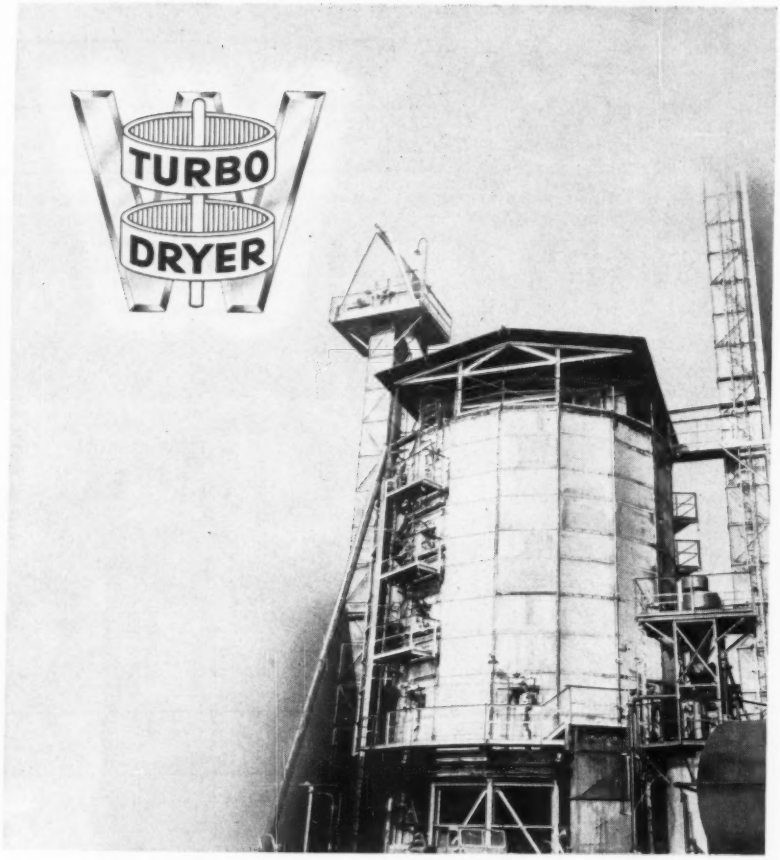
HOW HAVE OTHERS SOLVED the material handling problem which faces you right now? You'll find out by mailing the coupon. Because it will bring you Raymond's new "User's Report", an authentic, fully-illustrated case-history.

This concise report reveals the handling of a problem which may be much like your own . . . and how a Raymond Electric Truck helped solve it. The solution to your problem . . . or an idea for its solution . . . may very well be described.

Our new "User's Report" constitutes "must" reading for executives like yourself. Why not send for your copy now? No obligation, of course.



EMBLEM of SERVICE
to the Process Industries



This trademark stands for 25 years of important service to the process industries. During this time a great many custom engineered TURBO-DRYER® installations have solved difficult processing problems and have increased profit margins. These installations are distinguished for their performance—close tolerance control, non-degradation of product and continuity of operation.

Wyssmont Company, Inc., has pioneered advancements and is constantly making significant contributions in the fields of

- Continuous low temperature drying
- Continuous closed circuit drying
- Continuous purification by entrainer sublimation
- Continuous desolventizing with solvent recovery
- Continuous drying with superheated vapor

As in the past Wyssmont will continue to work closely with customers, utilizing its trained engineering talent and advanced testing facilities for solving new challenging problems.

TURBO-DRYER® Closed Circuit Systems are available in a wide range of sizes from packaged pilot plant units to giant outdoor units with evaporative capacities in excess of 20,000 lbs. per hour. Your inquiries are invited.

TURBO DRYER WYSSMONT COMPANY, INC.

DRYING & PROCESS ENGINEERS

The Wyssmont TURBO-DRYER® is applicable to continuous drying with SOLVENT RECOVERY, continuous purification by SUBLIMATION, continuous SOLID-GAS REACTIONS, and as a DRYER-COOLER.

42-12C 27th St. (Bridge Plaza South), Long Island City 1, N. Y. Representatives in principal cities.

ing to implement Hamilton's request for a program; but in the 1830's, in America and elsewhere, the *Report* was eagerly read, and in the 1860's the United States began to be guided by the broad precepts Hamilton had laid down.

Toward a Diversified Economy

Hamilton looked to a diversification of the American economy by the encouragement of manufactures. Manufactures would complement and sustain agriculture; manufactures, in fact, were superior to agriculture, for they would increase the country's wealth as agriculture alone could not. Also, manufactures would encourage the application of a more extensive division of labor; they would permit a wider use of machinery; they would offer additional employment for classes of the community not fully or customarily utilized; they would stimulate emigration from foreign countries; they would furnish a wider scope for the exercise of human ingenuity and for enterprise; they would create a new, certain, and constant demand for agriculture's surplus products. The home market would expand and specialize, and the confines of the economy would constantly widen.

With enterprise—business—Hamilton was always concerned. In a characteristic passage he said:

> To cherish and stimulate the activity of the human mind, by multiplying the objects of enterprise, is not among the least considerable of the expedients by which the wealth of a nation may be promoted. . . . The spirit of enterprise, useful and prolific as it is, must necessarily be contracted and expanded, in proportion to the simplicity or variety of the occupations and productions which are to be found in a society.

How to do it? There were two ways: by making possible foreign investments in the United States, and by governmental support. In all his Reports, Hamilton stresses the importance of attracting foreign capital into the country exactly because it was new and poor. If government has faith and honor—as a result of the "increasingly favorable impressions which are entertained of our government"—"the attractions [for investment by foreigners] will become more and more strong."

Hostility to foreign capital Hamilton called an "unreasonable jealousy." It was not a rival; it was,

rather, "a most valuable auxiliary," for it "put in motion a greater quantity of productive labor, and a greater proportion of useful enterprise than could exist without it." "It is at least evident that . . . every farthing of foreign capital which is laid out in internal meliorations, and in industrial establishments, of a permanent nature, is a precious acquisition."

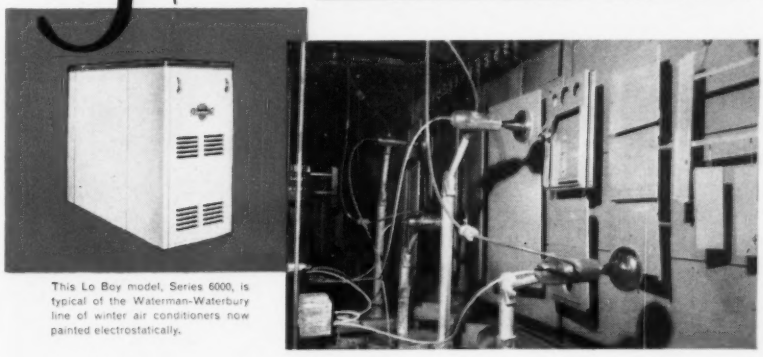
What impressive advice for a responsible leader to give a new nation! Instead of talking of the wider equalization of wealth and income and the need for social renovation, instead of complacently accepting the monetization of debt and its inevitable consequence of mounting inflation, instead of proposing the nationalization of foreign-owned properties and imposing all sorts of heavy restraints upon new investment—as is happening in so many of the newly created countries today—Hamilton was prepared to welcome the foreigner and give him every legal safeguard in his property rights.

To improve the country's "revenue and capital," a "system of perfect liberty" was best; for, in such an international community, "each country would have the full benefit of its peculiar advantages to compensate for its deficiencies or disadvantages." Hamilton, in short, followed Adam Smith—and the spirit of Smith's *The Wealth of Nations* permeates and influences all the Reports. Hamilton hoped for a time when there would be full mobility of trade, labor, and capital. In the world of that time, restraint, regulation, and prohibition checked a "mutually beneficial intercourse" among countries; this was the only reason why Hamilton called for public intervention.

The United States could not exchange with Europe on equal terms. If the United States adopted free trade, it would stand alone, compelled to pay high prices for its finished goods and confronted by uncertain markets for its staples. For these reasons it was imperative that America render itself "least dependent on the combinations, right or wrong, of foreign policy." Only because of these considerations were "the incitement and patronage of government" necessary.

This is a far cry from the customary representation of Hamilton as the manipulator and director of an "energetic" government; for Hamil-

3 times as many Furnace Casings per gallon of paint with **RANSBURG NO. 2 PROCESS!**



This Lo Boy model, Series 6000, is typical of the Waterman-Waterbury line of winter air conditioners now painted electrostatically.

Quality of work is improved; Labor costs are cut and Production Stepped up 150% with

RANSBURG Electrostatic Spray Painting

Results exceeded expectations when Waterman-Waterbury, Minneapolis, modernized their finishing department and went from hand spray to Ransburg No. 2 Process in painting their quality line of heating and air conditioning equipment.

By the former hand spray method, W-W used a half gallon of paint to coat a single casing. Now, with Ransburg No. 2, they get SIX CASINGS PER GALLON . . . or 3 times as many per gallon. Furnace casings, as well as other painted parts which go into the famous Waterbury Furnaces, now get a uniform coating of .8-mil.

Production was increased, too, as automatic painting enabled them to step up the conveyor speed from 7 fpm to 11½ fpm. Where they formerly turned out a complete furnace in five minutes, NOW they assemble three in just six minutes . . . an increase of 150%. All in all, they figure the modernization program—with Electro-Coating—saved over $11,000 in the first three months of operation.

NO REASON WHY YOU CAN'T DO IT TOO!

Whatever you paint, we'd like to tell you more about the efficiencies and worthwhile savings which can be yours with Ransburg Electro-Coating Processes. Get our No. 2 Process brochure which cites many on-the-job examples of electrostatic spray painting on a wide variety of products. Or, we'll be happy to loan you our new film, "The Big Attraction" which tells the electrostatic spray painting story in sound and full color.

Call or write

RANSBURG
Electro-Coating Corp.
Barth and Sanders, Indianapolis 7, Indiana

85

ton came to intervention only with the greatest reluctance—and hoped it would be brief in duration.

In the *Report on Manufactures*, Hamilton examined and commented on all the devices governments had been using to encourage industry: protective duties on imports; prohibition of and prohibitive duties on rival articles; prohibition of the export of raw materials; bounties; premiums; the exemption of raw materials from duty; drawbacks on raw materials from which manufactured articles are to be exported; the encouragement of new inventions; and governmental assistance to internal improvements.

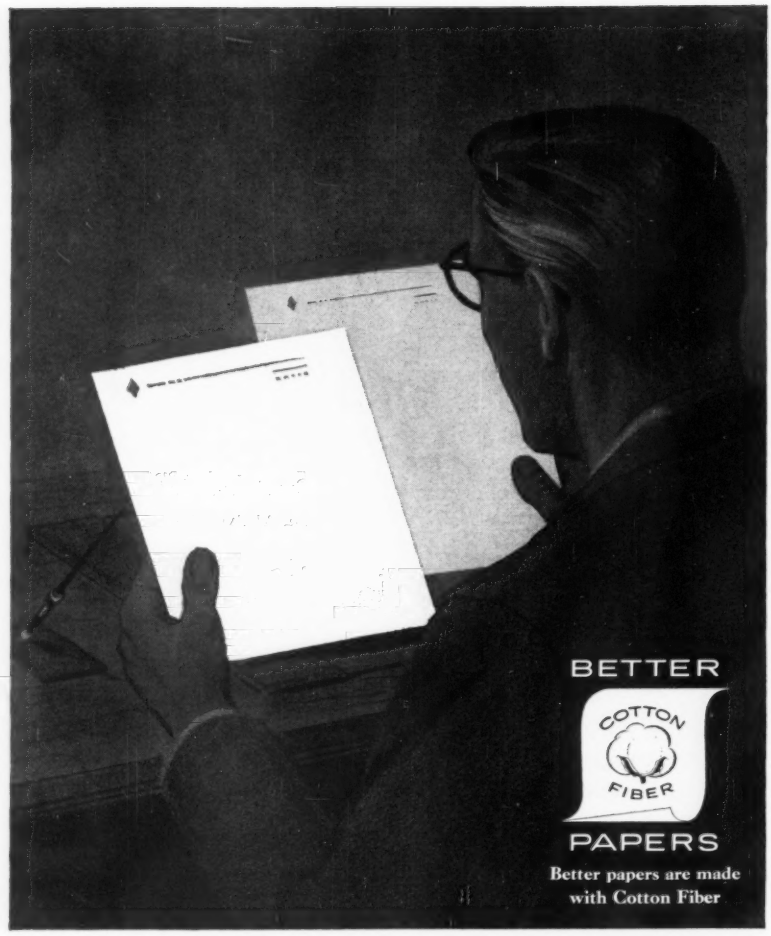
THE AUTHOR • Louis M. Hacker has been dean of the School of General Studies, Columbia University, since 1949, and is the author of many books on American history and the American economic system, among them *The Triumph of American Capitalism*, *Alexander Hamilton in the American Tradition*, and *American Capitalism*. The last two were published this year.

Dean Hacker has been lecturer in history or economics at Summer sessions of Columbia University, the University of Wisconsin, Ohio State, Utah State Agricultural College, and the University of Hawaii, and has been a member of the Columbia economics department since 1935, a professor in that department since 1948. He was Harmsworth Professor of American History at Oxford University 1948-1949, a lecturer at Cambridge University in 1952, and has lectured frequently at the National War College and the Army War College.

Temporary Bounties Best

Of all these, said Hamilton, not high protective tariffs, not restraints on the export of raw materials, but bounties are best! Indeed, there is a continuing argument against protectionism running in and out of the discussion: High tariffs lead to scarcities, mounting prices, the danger of monopoly manipulation. Again, unlike protective duties, bounties would promote exports, for tariffs can have no "influence upon the advantageous sale of the article produced in foreign markets."

If the United States, then, is to have manufacturing, "pecuniary bounties are, in most cases, indispensable to the introduction of a new branch." Hamilton wanted such support; it was essential if we wished to overcome the "obstacles which arise from the competitions of supe-



GIVE YOUR LETTERHEAD A LIFT
WITH WESTON COTTON FIBER BOND

You can see the difference, feel the difference . . . even *hear* the difference when you compare WESTON BOND with letterhead papers that lack cotton fiber quality. Cotton fiber adds character and impressiveness that *stand out* at a cost you hardly notice.

See for yourself the difference cotton fiber quality can make in your letterhead and business forms. Ask your printer to use WESTON BOND for your next lot of letterheads. He has it in white, colors, white opaque, white litho finish and matching envelopes . . .

Or write for a sample book and make your own comparison. Address Dept., DR.

WESTON PAPERS • PROTECT YOUR RECORDS •

BYRON WESTON COMPANY
Makers of Papers for Business Records Since 1863
DALTON, MASSACHUSETTS

WESTON BOND
Cotton Fiber Quality Letterhead Paper

rior skill and maturity elsewhere." But bounties only for "infant manufacture" and bounties as a temporary expedient. For Hamilton made this important reservation concerning prolonged governmental intervention:

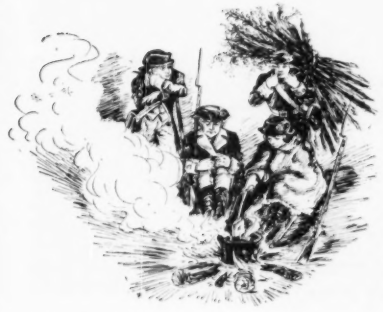
> The continuance of bounties on manufactures long established must almost always be of questionable policy; because a presumption would arise, in every case, that there were natural and inherent impediments to success. But in new undertakings, they are as justifiable as they are sometimes necessary.

Thus, intervention was to be a matter not of principle but of necessity—to compel foreign countries to give our trade easy access to their markets, and to provide for the national defense. Public policy should be variable and sensitive. It must adjust to changing circumstances and it must be moderate. To Hamilton, protectionism was no ideal and isolation no virtue. If protection—as an expedient—would help entrepreneurs or business men, if it would attract foreign capital to the United States, the results would accrue to the benefit of the whole community.

Only so far would Hamilton go down the road of governmental direction of the American economy. He would establish through government the integrity of the country's fiscal and monetary and credit operations and encourage "infant manufacture" through short-term devices.

American capitalism, in these terms, has amply fulfilled the promise Hamilton envisaged for it. The American system of production, saving, and new capital formation, through private entrepreneurs willing to take risks, is firmly based on Hamilton's great accomplishment, the creation of those attitudes which as a result of public faith and honor make possible private investment and therefore innovation and growth.

END

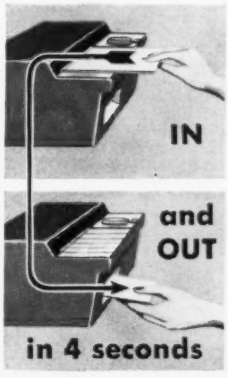


New All-Electric copy maker
...now at a new low cost!

Dry process machine gives you copies in 4 seconds made by electricity alone!

All-new and All-Electric! The newly styled THERMO-FAX "Secretary" Copying Machine gives you copies of letters, statements, orders, invoices and other business data right when you need them. Exclusive process eliminates chemicals, negatives, liquids and fumes from office copying forever. You make copies in 4 quick seconds for as little as 5¢ per copy. Now you get all these exclusive advantages of the only dry process copy maker at the *new low* cost of only $299*. Send coupon below for complete details today.

*Suggested retail price



Thermo-Fax
COPYING PRODUCTS

The terms THERMO-FAX and SECRETARY are trademarks of Minnesota Mining & Mfg. Co., St. Paul 6, Minn. General Export: 99 Park Avenue, New York 16, N.Y. In Canada: P.O. Box 757, London, Ont.

Minnesota Mining & Manufacturing Co.
Dept. HQ-87, St. Paul 6, Minnesota
Send full details on the cost-cutting new THERMO-FAX "Secretary" Copying Machine.

Name_____
Company_____
Address_____
City_____ Zone____ State_____

AMERICAN TRUST COMPANY

San Francisco

Statement of Condition, June 30, 1957

RESOURCES		LIABILITIES		
Cash on Hand and in Banks	$ 273,512,803.65	Deposits		$1,454,861,787.35
U. S. Government Obligations	342,934,439.09	Acceptances Outstanding		1,795,810.36
State, County, and Municipal Bonds	66,914,379.95	Reserve for Unearned Discount		14,352,038.14
Other Bonds and Securities	25,592,485.67	Reserve for Interest, Taxes, etc.		9,398,035.00
Stock in Federal Reserve Bank	2,400,000.00	Other Liabilities		2,840,353.09
Loans and Discounts	851,200,681.88	Capital Funds:		
Bank Premises and Equipment	15,049,973.86	Capital Stock ($10.00 par value)	$27,812,500.00	
Other Real Estate	1.00	Surplus	52,187,500.00	
Customers' Liability Under Acceptances	1,783,605.58	Undivided Profits	27,816,097.58	107,816,097.58
Accrued Interest Receivable and Other Assets	11,675,750.84			
Total Resources	$1,591,064,121.52	Total Liabilities		$1,591,064,121.52

United States Government and other securities carried at $189,681,168.08 are pledged to secure U. S. Government Deposits, other public funds, trust deposits, and for other purposes as required or permitted by law.

DIRECTORS

FRAZER A. BAILEY
San Francisco

WAKEFIELD BAKER
President, Baker & Hamilton

KENNETH K. BECHTEL
Chairman of the Board
Industrial Indemnity Company

COLBERT COLDWELL
Coldwell, Banker & Company

PETER COOK, JR.
Rio Vista

RANSOM M. COOK
Senior Vice President

PAUL L. DAVIES
Chairman of the Board, Food Machinery and Chemical Corporation

CHARLES ELSEY
San Francisco

B. R. FUNSTEN
President, B. R. Funsten & Co.

HENRY Q. HAWES
Senior Vice President
McCann-Erickson, Inc.

WILLIAM L. KEADY
President, Fibreboard Paper Products Corporation

HARRIS C. KIRK
President

J. R. KNOWLAND
Publisher, Oakland Tribune

DANIEL E. KOSHLAND
President, Levi Strauss & Company

ROGER D. LAPHAM
San Francisco

JAMES K. LOCHEAD
Chairman of the Board

DONALD MACLEAN
President, California and Hawaiian Sugar Refining Corporation

J. W. MAILLIARD, III
Vice President
Mailliard & Schmiedell

DONALD H. McLAUGHLIN
President, Homestake Mining Company

ROBERT W. MILLER
Chairman of the Board
Pacific Lighting Corporation

GEORGE G. MONTGOMERY
President, Kern County Land Company

HERMAN PHLEGER
San Francisco

ALLAN SPROUL
Kentfield

MARK R. SULLIVAN
President, The Pacific Telephone and Telegraph Company

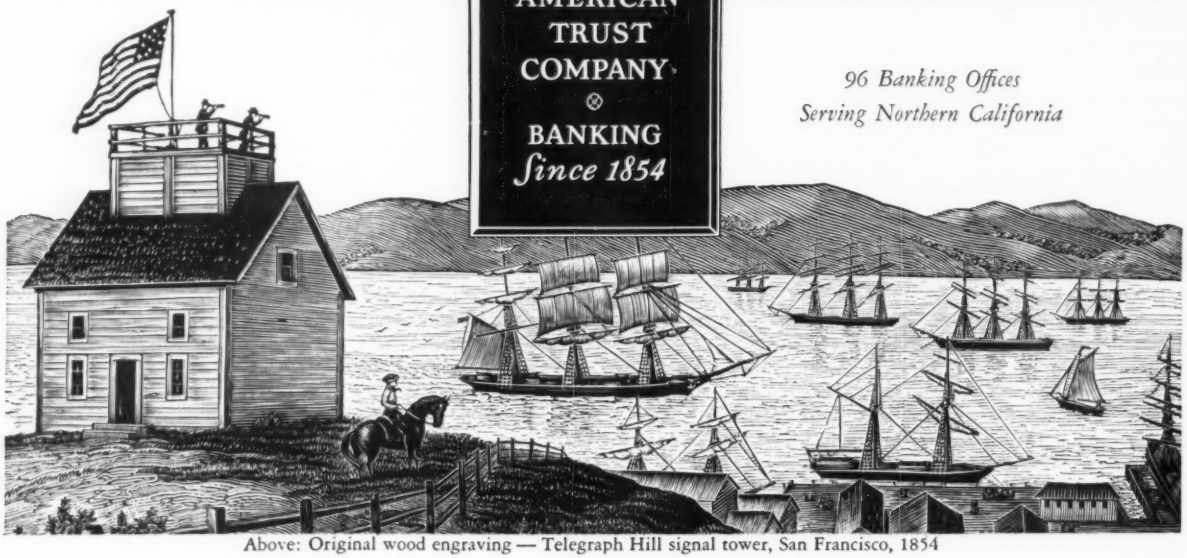
BEN F. WOOLNER
Attorney

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

MEMBER FEDERAL RESERVE SYSTEM

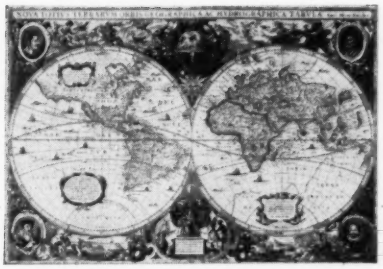
AMERICAN TRUST COMPANY
⊗
BANKING
Since 1854

96 Banking Offices
Serving Northern California



Above: Original wood engraving — Telegraph Hill signal tower, San Francisco, 1854

INTERNATIONAL MARKETS



ALEXANDER O. STANLEY, *Editor*

FOREIGN CURRENCIES: GORDIAN KNOT OF WORLD TRADE

FRANZ PICK and ALEXANDER O. STANLEY

As more countries drift into currency clubs, and governments vying for trade advantages increasingly resort to money maneuvers, the international company's need to keep fully abreast of developments in the complex field of currencies has become acute. In this study, DR&MI spotlights the danger signs, outlines the plus and minus factors in currency movements, and shows how these influence overseas operations.

THE ARITHMETIC of international trade has one key factor that has probably wrecked more plans, complicated more sales and profit patterns, and caused more confusion than all other elements combined—the variable conversion rate of foreign currencies.

This is the sensitive area in all calculations, all ventures overseas. Translated into terms of the hard U.S. dollar, foreign paper profits can thin down alarmingly when currencies are depreciated, fluctuate wildly, and begin to climb sharply. The repercussions are not limited to U.S. companies with branches, affiliates, or licensing arrangements abroad. They also affect companies engaged in direct export trade. When a currency weakens externally, this increases the cost of imported goods to the local consumer in terms of his own money. Sales problems develop, and credits and collections in terms of dollar exchange become more difficult. And then come the inevitable corollaries—tightening exchange controls and restrictive import regulations.

This blockage in currency channels can occur with lightning speed, impound collections for a long period of time, and tie up working capital with consequent loss of interest and profit to the international company.

To the experienced international executive these are calculated risks, accepted as the unpleasant and uncertain aspects of doing business abroad. But the swelling total of U.S. exports ($17.3 billion in 1956), the accelerated flow of outward-bound U.S. capital into branch investments ($3 billion in 1956 alone, double the annual rate of the past five years) suggest that American executives are moving with confidence through the maze of world money markets. And this holds true for our foreign competitors in overseas trade. In 1956, total world exchange of imports and exports broke through to a new high of $208 billion, up 11.8 per cent from 1955.

In a world where some 90 currencies exist uneasily, subject to the dictates of their respective governments, it would appear difficult to establish even a rough measure of values related to the debits and credits of daily business. But after 25 years of operating without a gold (coin) standard, international traders have developed formulas that are effective and elastic. And since the rank and file of educated opinion holds that (1) no return to the gold (coin) standard is foreseeable in our lifetime and (2) elimination of exchange controls throughout the key trading areas of the world is equally remote, anyone planning overseas operations must look into the mechanics of international money systems. (These are concisely defined on pages 90, 91, and 93.)

Since currencies are the pivotal point of all trade, it is necessary to follow their erratic course and learn to recognize the danger signals. To this end, a group of currency pressure points *to be kept under continuous study* have been developed and are listed below.

continued on page 90

The Minus Factors:

- A growing deficit balance of trade, with larger and larger imports outstripping relatively shrinking exports.
- A lag in the release of dollar and other exchange for payment of imported goods.
- A growing spread between the buying and selling rate of the national currency, and a rising discount rate in the principal currency centers mentioned on page 92.
- A persistent rise in the cost-of-living index indicating a creeping or galloping inflation, the importance depending upon the degree of increase.
- An increase in the *volume* of edicts on exchange and import controls, if restrictive in nature. Immediate, even retroactive, prohibitions have not been unusual in many countries in the past.
- Protracted strikes affecting an important segment of the working population.
- Poor or over-abundant key crops, or over- or under-production of extractive or industrial products to which the economy of the country is tied.
- Increasing tax rates or new taxes, especially on exports of commodities.
- A growing public debt due to deficits or currency supports (through loans). The emphasis here is on the external segment of the debt, but a heavy expansion in internal commitments can also cause currency woes.
- Reduction or discontinuance of service and amortization charges on external and internal loans.
- Sharp contraction in the volume of currency circulation or in currency velocity.

Any one or a combination of these depressants can cause serious dislocations in currency movements.

These checkpoints are not given in order of importance, since their relative values as indices can vary market by market. For example, the trend of (coffee) exports from Brazil is a more responsive and more important indicator internationally than is that country's industrial production index.

Using the Checkpoints

While the suggested pattern is elaborate, it is not necessary to use

text continued on page 92

SOME KEY FACTORS IN FOREIGN CURRENCIES

A. The National Currency Unit

B. The Conversion Rate into $1 U.S. as of June 28, 1957 at free market quotations. Note: Figures in bold represent U. S. dollar value—not rate of conversion.

C. The Per Capita Circulation of Currency at year end 1956, converted into U.S. dollars at official or the free market rate, whichever is of more realistic value.

D. Nine Year Percentage Trend of domestic purchasing power in terms of monetary units. January 1948—December 1956.

E. The Currency Zones: S—Sterling area; D—Dollar area; E—European Payments Union; e—Colonial or other politically controlled areas of the EPU members, that indirectly participate in this union; H—The Hague Club; P—The Paris Club.

F. Degrees of Currency Freedom of Residents: 1—free ownership of foreign currency within the country; 2—free ownership of bank balance abroad; 3—free export of *national* currency: • —complete restriction in stage 1, 2, or 3.

	A.	B.	C.	D.	E.					F.		
					S	D	E	H	P	1	2	3
United States	Dollar		$187	−15		D				•	•	•
Canada	Dollar	.953	$125	−25		D				•	•	•
LATIN AMERICA												
Argentina	Peso	40.75	$ 61	−73					P	•	•	•
Bolivia	Boliviano	8,300.00	$ 5	−99		D				•	•	•
Brazil	Cruzeiro	72.50	$ 18	−70				H		•	•	•
Chile	Peso	800.00	$ 14	−93						•	•	•
Colombia	Peso	6.00	$ 11	−46		D				•	•	•
Costa Rica	Colon	6.83	$ 26	−27		D				•	•	•
Cuba	Peso	1.02	$ 74	+ 8		D				•	•	•
Dominican Republic	Peso	1.00	$ 21	− 2		D				•	•	•
Ecuador	Sucre	17.95	$ 10	−13		D				•	•	•
El Salvador	Colon	2.50	$ 21	−40		D				•	•	•
Guatemala	Quetzal	1.00	$ 19	−23		D				•	•	•
Haiti	Gourde	5.00	$ 4	− 8		D				•	•	•
Honduras	Lempira	2.00	$ 11	−26		D				•	•	•
Mexico	Peso	12.50	$ 14	−45		D				•	•	•
Netherlands Antilles	Guilder	2.04	$118	−12			e			•	•	•
Nicaragua	Cordoba	7.60	$ 15	−40		D				•	•	•
Paraguay	Guarani	133.33	$ 5	−96						•	•	•
Peru	Sol	19.05	$ 12	−55						•	•	•
Surinam	Guilder	2.50	$ 34				e			•	•	•
Uruguay	Peso	4.11	$ 49	−48						•	•	•
Venezuela	Bolivar	3.35	$ 61	−19		D				•	•	•
EUROPE												
Austria	Schilling	26.10	$ 78	−55			E	H	P	•	•	•
Belgium-Luxembourg	Franc	50.80	$244	−15			E	H	P	•	•	•
Denmark	Krone	6.91	$ 71	−29			E		P	•	•	•
Finland	Markka	381.00	$ 40	−49						•	•	•
France	Franc	414.00	$177	−52			E	H	P	•	•	•
Germany	Mark	4.25	$ 71	−18			E	H	P	•	•	•
Greece	Drachma	30.05	$ 24	−58			E			•	•	•
Iceland	Krona	33.85	$ 69	−51	S		E			•	•	•
Ireland (Eire)	Pound	**$2.62**	$ 70	−28	S		E			•	•	•
Italy	Lira	627.00	$ 58	−25			E	H	P	•	•	•
Netherlands	Guilder	3.86	$ 95	−30			E	H	P	•	•	•
Norway	Krone	7.09	$126	−33			E		P	•	•	•
Portugal	Escudo	28.75	$ 46	− 6			E			•	•	•

DIVISION OF WORLD TRADE IN 1956 BY CURRENCY AREAS

(in billions of dollars)

Spain	Peseta	52.15	$ 37	−34				●	○	○
Sweden	Krona	5.18	$147	−29		E	P	○	○	○
Switzerland	Franc	4.28	$287	−10		E	P	●	●	●
United Kingdom	Pound Sterling	$2.645	$ 93	−34	S	E	H P	○	○	○
Yugoslavia	Dinar	800.00	$ 5					○	○	○
MIDDLE EAST										
Egypt	Pound	$1.70	$ 20	− 6				○	○	○
Iran	Rial	80.25	$ 5	−33				○	●	○
Iraq	Pound	$2.50	$ 25	+17	S			○	○	○
Israel	Pound	$0.425	$ 51	−66				○	○	○
Jordan	Dinar	$2.50	$ 27		S			○	○	○
Lebanon	Pound	3.70	$ 72	+13				●	●	●
Saudi Arabia	Riyal	5.71	$ 19					●	●	●
Syria	Pound	3.85	$ 26	+ 6				●	●	●
Turkey	Lira	13.10	$ 9	−36		E		○	○	○
AFRICA										
Ethiopia	Dollar	3.33	$ 3					○	○	○
Ghana (Gold Coast)	Pound	$2.64	$ 21		S			○	○	○
Libya	Pound	$2.40	$ 12		S			○	○	○
Union of South Africa	Pound	$2.645	$ 24	− 3	S			○	○	○
FAR EAST—OCEANIA										
Afghanistan	Afghani	55.50	$ 3					●	●	○
Australia	Pound	$2.03	$ 95	−52	S			○	○	○
Burma	Kyat	12.05	$ 3	−12	S			○	○	○
Cambodia	Riel	100.00	$ 3					○	●	○
Ceylon	Rupee	6.25	$ 8	−11	S			○	○	○
Hong-Kong	Dollar	6.16	$ 45	−23	S			●	●	●
India	Rupee	5.66	$ 7	−15	S			○	○	○
Indonesia	Rupiah	48.50	$ 3	−59				○	○	○
Japan	Yen	418.00	$ 20	−55				○	○	○
Korea	Hwan	1,125.00	$ 3	−99				○	○	○
Laos	Kip	133.33	$ 8					○	○	○
Malaya	Dollar	3.35	$ 36	−28	S			○	○	○
New Zealand	Pound	$2.465	$ 95	−33	S			○	○	○
Pakistan	Rupee	7.85	$ 6	−14	S			○	○	○
Philippines	Peso	3.49	$ 10	+ 5		D		○	○	○
Taiwan (Formosa)	Dollar	37.75	$ 4	−85				●	●	○
Thailand	Baht	21.70	$ 12	−35				●	○	○
Vietnam	Piastre	84.50	$ 7					○	●	○

ABSTRACTED FROM PICK'S CURRENCY YEAR BOOK—1957 EDITION AND PICK'S WORLD CURRENCY REPORTS

REPORT from VULCAN

The trucking industry has made some radical changes during the past ten years. One is the wide use of Coverlight neoprene coated nylon tarps. It's not hard to figure out why. For example; Vulcan's Coverlight 32′ trailer Tarp is easily handled by one man. And is resistant to just about everything: abrasion, extreme weather, tearing, oils. Also, since it's waterproof—it cannot get waterlogged or frozen in winter. (The morale factor there is worth plenty.) Another important point is its *lightness* . . . means fewer pounds of tarp—more pounds of payload.

●

SAFETY NOTE: *Many truckers find that a tied down back flap of Coverlight protects unloaders from falling crates when the back doors are opened. Something to think about.*

●

Another major change in transportation is the use of LP fuels. Like everything else though, there are problems here. The aliphatics and aromatics play havoc with certain materials—especially in carburetor diaphragms and gaskets. Vulcan neoprene coated nylon diaphragms and gaskets are chemically inert to these.

●

Vulcan diaphragms need no lubrication, remain flexible under wide temperature ranges and respond readily to pressure changes. (Vulcan diaphragms have been used by the gas utilities for over 25 years.) Industry recognizes that certain "created materials" are better suited to various applications than the "real" thing. For instance, special fabrics are synthesized to meet requirements with which existing materials cannot cope.

●

The research and development laboratories of Vulcan are constantly approached by industry with the request, "Make this for us."—and again a new, original material is created for a specific application. If you have a fabric application problem, why not contact us for assistance and information? We'd be glad to help.

Another REEVES VULCAN RUBBER PRODUCT

REEVES BROTHERS INC.
Vulcan Rubber Products Division
54 Worth Street
New York 13, N. Y.

(ADVERTISEMENT)

As a service to its readers, DUN'S REVIEW AND MODERN INDUSTRY prints the following listings which are submitted without recommendation or commitment on its part. Rates for listings on application.

TO BUY

GERMANY

0271 Wishes to purchase direct wool and synthetic rugs and runners, curtains, and linoleum in quantities from $25,000 to $50,000. GEORG HATKE K.G. (importer, wholesaler, retailer), 67 Soegestrasse, Bremen.

INDONESIA

0272 Wishes to purchase direct machinery for the manufacture of plain sheet window glass. Capacity: 200,000 cases of 100 sq.ft. (2mm. thickness) a year, with the possibility of expansion to 300,000 cases. RODAMAS CO., LTD. (importer, exporter, manufacturer), 43 Pantjoran, Djakarta.

ITALY

0273 Wishes to purchase direct varnishes for wood and linoleum flooring, and water repellant for the protection of wood. GEOM. GIUSEPPE BOCCIARDO (importing distributor), 26 Via G. De Castillia, Milan.

0274 Wishes to purchase direct machinery and equipment for the manufacture of rennet powder (made of calf stomachs) according to U.S. standards and specifications. FABRE & CO. (manufacturer of saffron and rennet), 11 Via Grazie Vecchie, Monza (Milan).

KOREA

0275 Wishes to purchase direct, the following antibiotics: Dihydrostreptomycin, 200,000 1-g. vials, expiration date after February 1961; and procaine penicillin G in oil, 250,000 3-million-unit vials, expiration date after May 1960. THE DAEIL INDUSTRIAL CO., LTD. (Daeil Sanup Chusik Wheisa), (importing distributor), 70 Sokong-dong, Choong-ku, Seoul.

TO SELL

ENGLAND

0276 Ladies' miniature safety razor of nickel plated metal, packed in attractive plastic box complete with blades. Spare blades available. GEO. H. LAWRENCE LTD., Sheffield 3.

FRANCE

0277 Wishes to export direct to U. S. importers, or through agents, good to highest quality Limoges chinaware articles. PORCELAINES SINGER (manufacturer, wholesaler, exporter), 79 rue Armand-Dutreix, Limoges, Haute-Vienne.

GERMANY

0278 Wishes to export direct or through agent transfer pictures which may be used for labeling various items, such as hand tools, automotive equipment. FRIEDERICH BENTLAGE (manufacturer of transfer pictures; exporter), 1-2 Poststrasse, Bielefeld.

0279 Wishes to export direct emery files (laps) for treating (tungsten) carbides and alloy steel. FEINSTSCHLIEFF-TECHNIK KARL & HANS J. EBKE (manufacturer of Macolaepp products, emery files (laps); exporter), 58 Schlittenbacherstrasse, Luedenscheid.

ITALY

0280 Wishes to export direct and seeks agency for chemical products for food, pharmaceutical, cosmetic, and perfume industries. List available. FARMEUROPA (export merchant), 75 Viale Abruzzi, Milan.

0281 Wishes to export direct or through agent 10,000 monthly of screw drivers. PRIMO AGHIFICIO ITALIANO (manufacturer, wholesaler, exporter), Lecco Laorca (Como Province).

NETHERLANDS

0282 Wishes to export direct or through selling agents in poultry-raising regions of the United States first-quality poultry preparations (preventive and curative against all fowl diseases). TRIO INDUSTRIE EN HANDELSONDERNEMING (manufacturer of poultry preparations; exporter), 71 Postelstraat, 's-Hertogenbosch.

TO REPRESENT

COLOMBIA

0283 Seeks agency for agricultural fertilizers and superphosphates, which will be sold to government agricultural agencies and distributors. YANN JESTIN (manufacturer's representative), 10-34 Avenida Jimenez, Bogota.

FRANCE

0284 Wishes to obtain agency from U.S. firms for beauty products, perfumes, toilet waters, and equipment for beauty care. ANNA PAULA, 81 rue de Miromesnil, Paris VIII.

0285 Seeks agency from U.S. firm for liquid detergents and all kinds of items for sale in drug stores. Firm would like to be licensed for manufacture and distribution of chemicals, food, etc., in France and other European countries. HENRI LEMPEREUR & SES FILS, Montigny-en-Ostrevent, Nord.

GERMANY

0286 Wishes to obtain agency for U.S. producers and/or exporters of all kinds of food including luxury items. KARL KROHNE & SOEHNE O.H.G., 150 Hellweg, Dormund-Wambel.

ITALY

0287 Seeks agency for chemical products for the pharmaceutical industry. FARMEUROPA (importing distributor), 75 Viale Abruzzi, Milan.

0288 Wishes to be appointed as agent for Italy of U.S. manufacturers of cathode-ray tubes for television, electronic gun for cathode-ray tubes; thermionic valves for radio, television, and other purposes; transistors for radio, television and other purposes; glass television bulb blanks, and other special bulbs for thermionic tubes. ARNALDO BROSIO (agent), 11 Via Assarotti, Turin.

MALAYA

0289 Wishes to obtain agency for machinery for rice miling and coconut oil production. SUN WO LOONG OIL MILL CO., LTD. (manufacturer or rice bran oil and coconut oil), 51 Madras Lane, Penang.

RHODESIA AND NYASALAND

0290 Seeks agency for steel products, including corrugated iron, angle iron, plate iron, and reinforcing steel in bars. MARKITEX (C.A.) (PVT.) LTD., (subsidiary of British Markitex, Ltd., London, E.C. 2, England) (confirming house, manufacturer's agent), 413 Pockets Building, Stanley Ave., Salisbury.

VENEZUELA

0291 Seeks agency for communications materials and appliances. SUMATELCO, C.A., MATERIALES ELECTRICOS Y DE COMUNICACIONES (importing distributor), Edificio Sudameris, Avenida Urdaneta, Aptdo. 3747, Caracas.

all the gradations. The experienced international executive limits himself to the markets in which he has heavy commitments, actual or potential. He can sometimes get by with a study of the first five items suggested above, although the broader the base of analysis, the sounder the conclusions are likely to be.

The overlap of currency systems suggests the need for watching developments in all the countries participating in the several currency systems detailed in the table on page 90. Reason: currency disturbances at remote points tend to radiate to the key currency centers (London—New York — Paris — Amsterdam — Frankfort—Rome—Tokyo—and lately Rio de Janeiro and Buenos Aires.) The bulk of world trade is represented by currency movements in these nine areas.

The suggested formula is not intended to be a nostrum for all currency headaches. Too many subtle disturbances can develop into alarming symptoms of trouble too late to be controlled without some damage. The political supervision and control of national currency statistics often make these suspect from an objective point of view. Significant unfavorable developments can be suppressed by government censorship. *But any deviation from the norm is itself a valuable signal, suggesting immediate reappraisal.* So watch the trend as well as the tabulation.

Sources of Statistics

Another nagging worry of the international executive is that the signs and portents will not be obvious *in time*. Statistics on the monthly world trade of the United States are released with a lag of three or four months. Those on the world trade of other countries are usually published six months late. But if you watch the trend and the shifting monthly balance of trade, a useful pattern will emerge. (For a list of the available sources, subjects see "Overseas Market Research: A Do-It-Yourself Guide," DR&MI, May 1957, page 105.) The releases of the International Monetary Fund, Washington, D.C., are particularly helpful because of the extent of coverage, the compactness of the reports issued, and the regularity of publication. But don't overlook the possibility of getting advance information from

text continued on page 94

A BRIEF GUIDE TO INTERNATIONAL CURRENCY SYSTEMS

CONVERTIBILITY exists in a country when the currency of any nation can be used without restriction, by both residents and non-residents, for all trade and capital transactions and payments with any other country.

CLEARING SYSTEMS are a method of compensating foreign trade between countries by bookkeeping techniques of credits and debits, without an actual transfer of currency. They were originally introduced to regulate trade between nations at least one of which had a shortage of convertible currency or gold.

PARA-CONVERTIBILITY exists when international trade transactions can be conducted on a basis of unrestricted use of other monetary units, freely exchangeable against each other, for all current commercial payments. This stage of transferability is mostly based on clearing organizations of multilateral character.

MULTILATERALISM is the system of free interchangeability of currencies and account balances for trade purposes only among a specified group of nations.

A MULTIPLE EXCHANGE RATES SYSTEM exists when there is more than one official exchange value of the national currency unit in terms of other currencies, so that the government can (1) encourage certain domestic production and/or inhibit other transactions, (2) control and restrict imports or exports and depress or expand trade with certain nations through the use of different rates for various trade receipts and payments. There are some cases of constructive temporary use of such a system, but more often it is used to husband low foreign exchange reserves.

FREE OR BLACK MARKET RATES for currency units are unofficial, sometimes illegal prices of particular currencies, usually in terms of U. S. dollar value. Listing the true or "real" worth of monetary units which are subject to controls, these rates reflect supply and demand. Ironically, unlawful dealings in currencies at free or black market rates tend to express more realistic values, while the official values of rather strictly controlled units are often illusory.

BLOCKED ACCOUNTS are balances of non-residents which are restricted as to use by the monetary authorities of the country in which they are maintained. They are mainly transferable between non-residents, non-transferable otherwise, and are usually limited in use to certain investments or expenses within the country of account.

THE STERLING AREA is an association of territories consisting of the United Kingdom and the members of the Commonwealth, its colonies, dependencies, mandates and protectorates, and other monetarily autonomous countries which have a common pool of monetary reserves. This central fund is known as the Exchange Equalization Account, with London serving as the banker. The "member" nations have freedom of payments for all current commercial and most capital transactions with one another, working on a multilateral compensation basis with Sterling as the settlement unit within the Area.

TRANSFERABLE STERLING is an officially supported trade variety of the U.K. Pound Sterling, used to settle current commercial balances of all countries outside the Sterling and Dollar Areas with members of the Sterling Area. Balances of "transferables" can be freely and multilaterally shifted to other transferable accounts and can be maintained in British banks and traded among non-residents of the Sterling Area abroad. Transferable Sterling is the dominant monetary unit of world trade, and its use indirectly links the Sterling Area, the European Payments Union, The Hague Club and Paris Club.

RESIDENT STERLING is a variety of the Pound consisting of all balances of Sterling Area residents, who can legally transfer these funds freely with each other only. However, unlicensed transfers for account of foreign principals, who use them within the Sterling Area, take place constantly.

SWITCH OR SECURITY STERLING is a "blocked" variety of the Pound which is used by non-residents of the Sterling Area for acquisition of British securities, which in turn may be exported. Switch Sterling is legally transferable only between non-resident holders.

THE EUROPEAN PAYMENTS UNION, formed in July 1950, is an organization consisting of fourteen continental European nations, the U.K., and Ireland, providing for a multilateral clearing system of trade and payments balances of member countries and their related areas. The U.S. dollar is the basic accounting unit, and the Bank for International Settlements in Basle, which is the central clearing house, establishes a monthly net surplus or deficit for each member. These accounts are settled monthly at 75 per cent in gold and an optional 25 per cent by credit. Obligations to pay gold may be effected by payment in U.S. dollars.

THE HAGUE CLUB is a multilateral trade and payments arrangement, signed in the Hague in July 1955, between Brazil on one end, and on the other, the U.K., Netherlands and Western Germany (later joined by Belgium, Italy, France and Austria). The accounting unit is the A.C.L. (area of limited convertibility) dollar, certificates of which are auctioned in Brazil's foreign exchange markets and are transferable via clearings into any of the currencies of member countries.

THE PARIS CLUB is a multilateral trade and payments agreement, signed in Paris in July 1956, between Argentina, on one end, and on the other Austria, Belgium, Denmark, France, Netherlands, Norway, Sweden, Switzerland and the U.K. (later joined by Western Germany). All commercial and financial payments and collections between these countries and their related currency areas can be made in any of their currencies, which are transferred through clearing systems.

Are You Certain You're Not?

Hidden seating costs can cost up to $2,500 per employee per year . . . costs that occur from the assumption that there is such a being as an "average worker"!

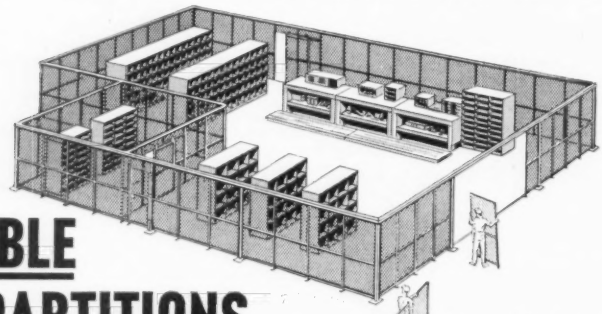
The efficient production organization recognizes the importance of "production seating" as a factor that increases employee volume by drastically decreasing time away from work station; and fatigue with its excessive errors, irritability and time loss.

There is no "fixed height" at which all tasks may be done . . . so production seating must offer these design features: properly shaped seats; comfortable leg support; proper weight distribution; seat-height range to meet varied body and work needs; and adjustments that can be made immediately by anyone without tools and without soiling hands (or even getting off the seat). Dependable offers them all, plus pleasing appearance, durability and simplicity!

Dependable produces a full line of production seating; for shop, assembly line, drafting room and office requirements. For the most part, this equipment can be yours without you paying more than you do for seating without its many exclusive features. Write now for full information about units to fit your needs. Your dividends start with your first order.

DEPENDABLE MFG. CO.
2407 Fort Crook Road, Bellevue, Nebraska

New low-cost way to set up a department . . . enclose areas . . . change plant layout



WIPCO MOVEABLE WIRE PARTITIONS . . .

No special tools
No special crews needed
. . . easily installed
. . . quickly relocated
by your own men!

Amazing new standard wire partitions developed by Wipco come to you ready for immediate installation! Your own men set them up quickly . . . easily. Made of tough, machine woven steel wire, Wipco enclosures cost less to install than wood framing and wire netting . . . can be disassembled and reinstalled in new locations when required. Ideal for stock rooms, tools rooms, runways, corridors, etc. — protect areas against theft and loss, permit ventilation and visibility . . . economical to maintain. Standard size sections and accessories available from factory stock. *For firm price, send free hand sketch of areas to be enclosed.*

Write Today for Bulletin P-55

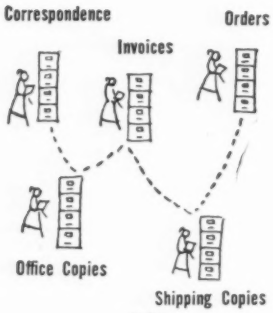
Wire and Iron Products, Inc., 1735 Sixteenth St., Detroit 16, Mich.

No More FILING BY THE MILE!

One look-up finds everything in

Oxford PENDAFLEX®

INTEGRATED I·N·F NAME FILE



Need all the facts fast?
Easy when look-ups are in Oxford's Integrated Name File.
What simpler look-up than when *all* papers of one customer are filed in one place?
I.N.F. is possible now, thanks to Pendaflex hanging folders and Oxford research.
For more information, mail coupon.

Oxford
FIRST NAME IN FILING

Oxford Filing Supply Co., Inc.
49 Clinton Road, Garden City, N. Y.
Send details of Integrated Name Filing to:
Name.....
Address.....
City & State.....

foreign sources. Export and import totals are released in newspapers and trade magazines abroad months ahead of their publication in the United States, and more precise quotations on currencies than are available in the United States are posted in some of the world's leading currency reports or newspapers, especially the *Neue Zuercher Zeitung* (Zürich), the *Agence Economique et Financière* (Paris), the *Ming Tak Bank Report* (Hongkong), *Le Commerce du Levant* (Beirut), *Bulletin Informativo Comtelburo* (Buenos Aires).

These periodicals regularly tally the conversion rates of all countries within their economic spheres, also report significant developments bearing on currency and international trade in the nearby bloc of countries. Finally, your own business connection, whether a branch, distributor, agent, or a licensee, can obtain this commercial intelligence data, especially if you design a report form covering the major points of interest. The important thing here is to be sure it is filed regularly, and that all sources of information are shown.

The Plus Factors

The analysis of currency movements is not, of course, wholly negative. While it helps to protect profits, it also yields clues to new opportunities by uncovering new markets to replace those undergoing currency repairs or alterations. Plus factors can be found within the same area of study suggested above. The *converse* of any of the eleven coordinates listed above as "minus factors" is an encouraging sign. Here, too, the persistence of a trend is more important than the short-term degree of improvement. The fewer the peaks and valleys, the more valid the signal. And of particular significance are loans obtained to support expansion in the industrial, agricultural, or extractives complex, or loans to improve the utilities. These strengthen the economic fabric, as well as developing immediate and long-term marketing possibilities. The loans may be underwritten by the International Monetary Fund, the World Bank, the Ex-Im Bank, and other foreign and U.S. public and private agencies. Reports of such loans usually appear in the daily press. Look for them.

Another "plus factor" shows up in the *number* of currency systems in which a country participates (see column E in table on page 90). The more "club memberships" it holds, the greater the latitude for currency exchange vis-a-vis all other currencies revolving within the "club" pattern.

Since 1947 these club systems have expanded in scope and number. Although distinct and separate, they all have one thing in common: each has a point of contact with all other systems, so that membership in one group results in some degree of exchange access to all other groups. There is persuasive evidence that this program of "synthetic" convertibility has increased the velocity of world trade.

What about the nonconformist countries—those without club memberships? There are some 23 of these, ranging from highly sensitive export countries like Japan, Chile, and Spain to the marginal exporters like Afghanistan, Sudan, Vietnam. Currency poverty, excessive inflation, or other monetary dislocations may force these nations to continue on their lonely course, but in some cases the situation may change. New combinations of currency partnership now under discussion may broaden the base of participation for the "have not" countries. An Asian-African Payments Union, an Arab combine, a South American "mariage de convenance" are being bruited about today. To take one specific case, Japan has recently expressed interest in joining the Paris Club. If it does, it will be the first Asiatic country to function within these currency systems, and the Japanese yen will have a wider range in the South American and European areas.

Convertibility programs remain plastic, and new forms may be expected; they should be watched for constantly. Item: Not to be outdone in the sphere of currency systems, the U.S.S.R. has just formalized in Warsaw a currency club of its own, the "Warsaw Club," placing all commercial transactions among countries within the Soviet orbit on a multilateral exchange basis.

Albania, Bulgaria, Czechoslovakia, Eastern Germany, Hungary, Poland and Rumania are among the members. Unit of exchange: the so called "accounting" ruble. Interestingly

TORNADO® PRESENTS THE

NEW-POWERFUL

MODEL "900" FLOOR MACHINE

Whatever the job to be done on your floors . . . scrubbing, waxing, buffing, grinding, sanding, or polishing . . . the all-new TORNADO Model "900" will do more jobs more efficiently.

If you're replacing or adding floor machines, don't fail to see a demonstration of the new TORNADO Model "900" and be convinced of its new power and versatility. One of the eight new models is RIGHT for the job you have to do.

Write for Bulletin No. 763

NEW **POWERFUL MOTORS** New heavy duty, capacitor start motors with horsepower ranging from ⅓ H.P. to 1 H.P.

NEW **BRUSH SPREADS** Four brush diameters for greater work potential and flexibility. 14", 16", 18", 22".

NEW **BRUSH COUPLER** Mounts directly on gear drive. Removal of the brush takes only a slight twist. Designed for dual-direction use.

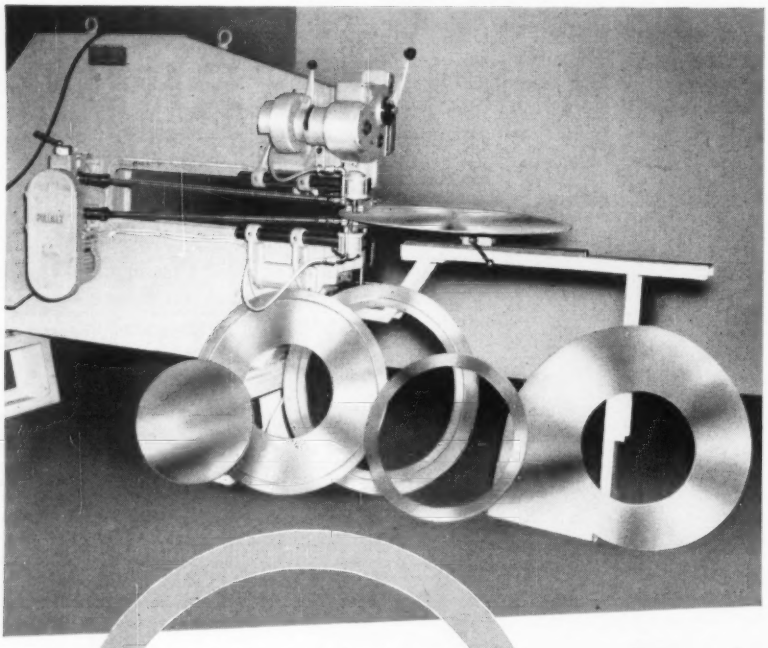
NEW **HANDLE MOUNTING** Reduces over-all length and gives positive and complete control over the machine. No "fighting" the "900".

NEW **DUAL SWITCH CONTROLS** Permit the operator to use either hand to control motor. One switch can be used to control solution tank for scrubbing.

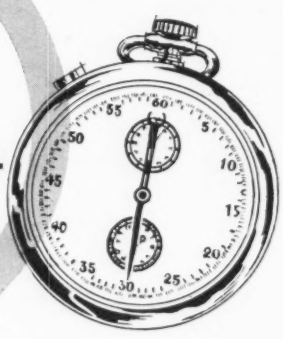
BREUER ELECTRIC MFG. CO.
5106 N. RAVENSWOOD AVE., CHICAGO 40, ILLINOIS

PULLMAX-First in Circle Cutting

Less Weight • Less Floor Space • Twice the Speed • Half the Cost!



PULLMAX
cuts 36″ circles
in 3/8″ MILD STEEL
in 30 seconds



With the amazing PULLMAX Heavy Duty machines, you can cut circles to practically unlimited sizes with the utmost accuracy.

With the power feed and outside attachment PULLMAX has proved itself the fastest, most modern and accurate ring and circle shear.

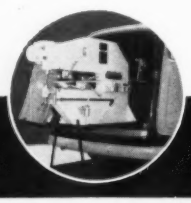
A PULLMAX Machine with a power feed that operates at various speeds up to 32 lineal feet per minute and a simple outside attachment is an investment of roughly ½ the cost of other ring and circle shears.

and the same Pullmax machine also does:

straight shearing • irregular cutting • louver cutting • dishing joggling • slot cutting • beading

Write for literature and prices today.

We'll be glad to send the Pullmax Mobile Demonstrator to your plant—just write or call.



AMERICAN PULLMAX COMPANY INC.
2483 North Sheffield Avenue • Chicago 41, Illinois

enough, Yugoslavia, Red China, North Korea, Vietminh sent observers to this conference but did not join the club.

Possible Future Developments

Can convertibility lead to the development of economic unions or blocs? It would appear so, if the recent trend in currency systems and especially the projected Common European Market are interpreted correctly. Still some dozen years in the offing, it will have to be formally ratified by the parliaments of the several countries involved. (Likely date: early 1958.) This economic union, popularly known as Euromarket, holds much promise and may be a pattern for other economic mergers in the future.

With Europe the focal point of international trade and the center of currency systems, it is imperative for any U.S. company with substantial or growing export interests to maintain a field staff of its own in this area, whether in the form of a branch or affiliate. Another practical, vitally important reason: A company incorporated or legally established in Europe can operate trade- and currency-wise within the Sterling Area, the E.P.U., and directly or indirectly within the Paris and Hague Clubs, expanding its international trade area.

A Fundamental Measure

If currency movements provide a sensitive index of immediate values one statistic in particular provides a fundamental market evaluation. This is the *amount of currency in circulation per capita* (see column C of table on page 90). Converted into U.S. dollars at the free or official market rate, whichever is more realistic, this figure will place a country in one of the four broad brackets which are outlined below. Translated into terms of living standards, these categories provide a rough index to the present potential of markets:

More than $100 per capita. These areas are generally wealthy territories with modern industries, excellent communications, and a high standard of living for labor and management. Purchases of consumer goods, as well as luxuries, are substantial. There are no food shortages, and life expectancies are the longest in the world. Adequate or good sav-

ings of the population and active, widely diversified security markets are also among their characteristics. All these countries have highly developed banking systems and are potential exporters of capital. *Total in this category: 8.*

Between $99 and $50 per capita. These countries have fewer automobiles, telephones, washing machines, and radios, and may be without television. Savings per capita are moderate or small, sometimes practically nil. Mass production of many industrial products is yet unorganized in most of these territories, and a high rate of illiteracy still exists. *Total in this category: 15.*

Between $49 and $20 per capita. These are, in general, industrially undeveloped countries, with large uninhabited areas and bad road systems. They depend on foreign production for most manufactured and capital goods. Telephones are rare. Many people are barefoot and poorly clothed. Banking systems are invariably old-fashioned, and few people have substantial savings. Hygiene is medieval and pharmaceutical products are scarce. Foreign investment is badly needed. *Total in this category: 18.*

Less than $20 per capita. These must be considered poor countries. They include the territories of the Soviet satellites, with their paper currencies of unrealistic value. In most of these lands, the supply of food, clothing, and other consumer goods is not even adequate. Medical institutions are few. Ownership of an automobile is an achievement of political rank or of wealth. Average life expectancies are among the lowest in the world. Savings are either compulsory, or in the form of government bond acquisition through salary withholdings, or have been wiped out by inflation. Illiteracy in most cases is the rule rather than the exception. Foreign investments, urgently needed, are opposed by collectivistic dogma or by political insecurity. *Total in this category: 31.*

ABOUT THIS ARTICLE

This article was written in collaboration with Franz Pick, editor and publisher of *Pick's Currency Yearbook* and *Pick's Monthly World Currency Report.* Mr. Pick is a recognized authority in the field of international currencies and has made many valuable contributions to the clearer understanding of the complex money markets of the world.

Even their shepherd admits he can't figure out which is which. You'll be pleasantly surprised to find out that the *last* duplicated copy looks just like the first when you use *all-new* Colitho Direct Image Paper Plates and duplicating supplies.

The secret of this greater *uniformity* is that from plate to plate, box to box and shipment to shipment, Colitho Direct Image Paper Plates are *ph Control-coated to closer tolerances than ever before.* And Colitho Etch and Fountain Solution are specially formulated to bring out the exact same sparkling appearance from every plate.

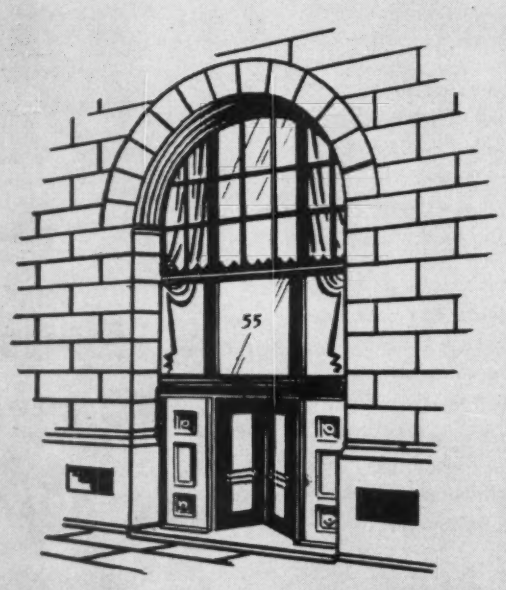
COPIES *that look alike*

Systems men and duplicator operators the country over are discovering this great new uniformity Colitho gives all their offset duplicating. For the name of your nearest Colitho supplier, write: Columbia Ribbon & Carbon Mfg. Co., Inc. Glen Cove, New York.

COLITHO OFFSET DUPLICATING PLATES AND SUPPLIES

Our service is tailored to provide all the working capital any qualified client needs, without increased borrowing, diluting profits or interfering with management.

Information available for any manufacturer or distributor with $500,000 or more annual sales.



Textile Banking Company

55 Madison Avenue, New York 10, N.Y.

Providing operational financing for the apparel, electronics, furniture, leather, plastics and textile industries.

Subsidiaries:

T. B. C. Associates, Inc., New York Southwest Texbanc, Inc., St. Louis

YOUR OWN ★ ADVERTISING ★ SAFETY ★ ASHTRAYS CRYSTAL GLASS 5"

LONG LASTING GOODWILL BUILDER

DIRECT FROM FACTORY AT LOW COST

★ YOUR NAME, TRADEMARK OR SLOGAN IN COLORS — TELL US WHAT YOU WANT AND ASK FOR PRICES ON: ★

500 - 1000 - 2500 - 5000 OR MORE

THE RAINBOW ART CO., INC.

HUNTINGTON, W.VA. DEPT DB

DRAKE, STARTZMAN, SHEAHAN and BARCLAY

Distribution and Materials Handling Consultants

CONTROL, MOVEMENT AND STORAGE OF MATERIALS

41 East 42nd Street, New York 17, N. Y.

Studying the percentage trend of purchasing power (see column D of table on page 90) in correlation with the currency circulation brackets listed above makes it possible to weigh the vitiating affect of inflation on the individual currencies. Debasement of currencies has been rampant during the past nine years. Only six countries—Iraq, Lebanon, Cuba, Panama, Syria, the Philippines—of 62 countries reviewed have resisted the downward trend and ended up with plus percentages. Switzerland, Belgium, the United States, India, Germany, Venezuela, kept the decline of purchasing power within modest proportions, ranging from 10 to 19 per cent. The Dutch guilder (off 30 per cent), the pound sterling (off 34 per cent), the French franc (off 52 per cent), the Brazilian cruzeiro (off 70 per cent) suffered spectacular devaluations.

It is no wonder, then that internal freedom of currency ownership (see column F of table on page 90) continues to be the exception rather than the rule. Peculiarly enough, more latitude in currency ownership exists in Latin America, which has been plagued by currency exchange problems for years. Conversely, the European sector, which has lately developed a considerable degree of exchange convertibility, has had and continues to have tight internal controls. If anything, further restrictions are indicated here. Item: England has just prohibited the use of resident sterling to buy foreign securities abroad.

Constant Study Needed

The mobilization of currencies by governments in order to control their financial destinies is nothing new. The technique, with its many variants, has been in use almost from the time money was first devised as a medium of exchange 6,000 years ago. And the history of currency movements supports the cynical observation that "currencies are created only to be devalued." Some governments, like some people, manage their financial affairs wisely. Others, because of ineptness, inexperience, or indifference, follow a vacillating course under the pressure of expediency.

Today the capstone of any international marketing study or evaluation is the currency system. To ignore it is to court disaster.

SALES SOAR WITH EXECUTIVE SUITE ON WINGS

Executives take to the air to interview dealers, meet their distribution problems face-to-face.

IN THE hurly-burly consumer appliance business, companies are continually on the lookout for new approaches to boost sales. This is particularly true of laundry appliance manufacturers, which have experienced a sizable slump so far this year. Sales are running about 18 per cent below last year's level. This drop-off may not be disastrous for general appliance companies, but for a single-line outfit like Easy Laundry Appliances, Chicago, it calls for unusual measures to stimulate sales volume.

Says Parker H. Ericksen, vice president, "As a single-line company devoted exclusively to laundry appliances, we feel we can't afford to take the recent slump in sales lying down. We must be aggressive and meet our distributor problems face to face. So we decided to make a flying air squadron out of our top executive team."

The "Flying Executive Suite" (a converted DC-3 owned by Easy's parent company, Murray Corporation of America) made an exhausting eighteen-day, 8,500-mile sweep of the nation. Starting in New York, it took off for two-day conferences with distributors in Philadelphia, New Orleans, San Francisco, Los An-

Before the takeoff, Easy chief Parker H. Ericksen briefs the executive team members on their mission to boost sales. Ready to reply "Roger" are (left to right) B. C. Gould, president of Murray Corp.; James Koontz, Easy sales manager; Arnold Verlee, dryer manager; Richard Weiss, ad manager; Paul Welchans, service manager.

Once airborne, the Easy Laundry Appliances executive team warms up for the grueling meetings by bursting into their song: "Come, Josephine, buy a washing machine, it's a dryer too, a dryer too! Up, up, our sales will go higher, high as the sky with our washer-dryer. Come, Josephine, buy the washing machine that is *Easy-ly* the best!"

If You're on the Pass-Along List for Dun's Review and Modern Industry

An average of 2.9 persons read each copy of Dun's Review and Modern Industry.

If you do not now have a personal subscription you may be depriving yourself of knowledge you could put to use days or weeks before the pass-along copy reaches you.

Dun's Review and Modern Industry keeps you abreast of management practices that may save time, cut costs, increase income in your enterprise. It shows you what's new and better in production, industrial relations, marketing, general management, financial management, office management—and *why* it's better. And DR & MI analyzes business trends so you know the climate in which you're working. It already serves over 120,000 management men, of whom 53,000 are corporate presidents.

Order your *personal* subscription on the form below—*today*!

ORDER FORM

DUN'S Review and Modern Industry
99 Church Street
New York 8, N.Y.

Enter my personal subscription for ☐ one year $5 or ☐ three years $10 (U.S.A., Possessions, Canada. Elsewhere, double). I will pay when billed.

Name

Title

Company

Address

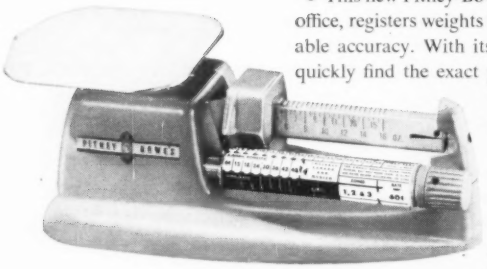
8-57

Signature

One Silver Dollar may save many!

• Test your postal scale with a U. S. silver dollar—mint-weight 15/16 ounce. If your scale shows markedly less than an ounce, many of your letters probably arrive "Postage Due", an annoyance to the recipients. If the dollar weighs an even ounce or more, you are wasting postage, using 6c on 3c letters in many instances!

• This new Pitney-Bowes "4900" designed for the small office, registers weights from ½ oz. to 1 lb. with dependable accuracy. With its cylindrical computer, you can quickly find the exact postage needed for 1st-3rd class mail . . . save time, postage, good will!



• Five other PB models available, including a parcel post scale weighing up to 25 lbs. Ask the nearest PB office for a "Silver Dollar" test . . . or write for free illustrated booklet.

Free: *Send for a handy desk or wall chart of Postal Rates, with parcel post map and zone finder.*

PITNEY-BOWES
Mailing Scales
1592 Walnut St., Stamford, Conn.
Made by the originator of the postage meter . . . offices in 103 cities in U. S. and Canada.

TIME RECORDER + TOTALIZER

automatic, continuous, operating data can be the difference between Profit and Loss!

Modern plant operation demands the most efficient and accurate means of evaluating both machine and man-power production . . . that's why leading companies everywhere are equipping their production lines, processes, systems and office machines with Time Recorder-Totalizers.

The Time Recorder-Totalizer monitors the operation of any machine, process or system by chronologically recording the time and duration of every "on" and "off" period during each day.

The Time Recorder-Totalizer makes it possible to analyze the efficiency and performance of any type of equipment plus simplifying cost accounting.

The TIME RECORDER-TOTALIZER incorporates the following features:

SPROCKET DRIVEN CHART . . . accurately timed . . . chronologically printed . . . available in speeds from one inch per hour to ten inches per minute . . . 250 linear feet per roll . . . each $1.25.

ELAPSED TIME METER . . . (Time Totalizer) registers accumulated "on" or production time.

AUTOMATIC REWIND ATTACHMENT with housing . . . facilitates inspection of strip chart during any period throughout the entire roll. (available for all models . . . $7.50 extra)

RUGGED CONSTRUCTION assures long carefree operation.

For complete information write to: Dept. DR-R1-8

standard INSTRUMENT CORPORATION
DIVISION OF HEAT-TIMER CORPORATION

657 BROADWAY. NEW YORK 12, N. Y.

Mfrs. of: Heat-Timer Electronic Controls, Heat Recorder-Totalizer, Varivalve, Thermovalve, Main Line Quick-Vent Valve, Motorized Valves, Smoke-Eye Smoke Alarm, Fire-Chief Fire Alarm, H-T Burner Alarm.

Trev Pierce (center), of Pierce-Phelps, Philadelphia distributor, goes along from New York to Philadelphia to discuss marketing problems with Vice President Ericksen and President Gould.

geles, and Syracuse, ending the tour in Chicago.

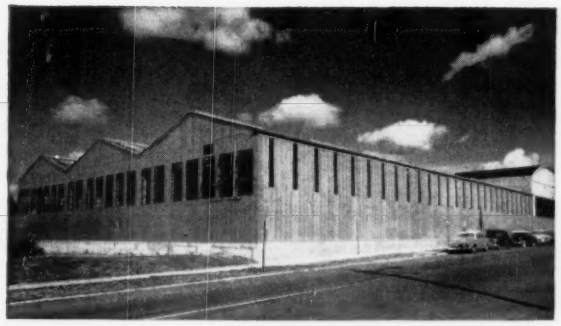
The plane was equipped as an office-conference room and sales showroom, complete with desks, swivel chairs, phones, dictating machines, displays, and sales aids. Every facility was provided to help Easy executives plan their strategy and rehearse their presentations before each distributor meeting. On practically every leg of the trip, one or more distributors came along for a private huddle on their particular marketing problems.

Hearing Gripes

At each of the two-day stopovers, dawn-till-midnight meetings with local distributors were held on the ground. Easy executives presented new strategies for boosting dealer and consumer enthusiasm, and closeted themselves with individual distributors to hear out their gripes and give help and encouragement. Merchandising and sales gimmicks, marketing techniques, and distribution methods were examined for ways to spur sales.

'After the whirlwind trip, Vice President Ericksen looked for a quick pick-up in sales volume. And he got it—volume in May was 12 per cent higher than had previously been expected.

At ease at journey's end, the top executives of Easy hailed the tour as the company's most successful promotion to date. —T.K.



Precision-made parts are assembled on site. Even large buildings go up fast—"move in" time is reduced.

Rigid frame design permits floor-to-ceiling, wall-to-wall use of space. Buildings can be completely insulated.

Why Armco Steel Buildings give you more value for your money

Buildings can easily be enlarged or modified by adding standard units.

Note that the overhead crane has free access to all sections of the building.

Armco Steel Buildings give you more solid value for your building dollar. The reasons: Basic Armco plans save preliminary design and engineering costs. Factory-engineered parts are delivered to your site ready for rapid assembly. Standard panels lock together quickly, then are bolted top and bottom. This modern technique saves many costly steps of conventional construction.

The saving goes into the quality of the building, too.

In an Armco Steel Building you get a weathertight structure that withstands greater wind and snow-loading. The aluminum-coated or zinc-coated steel panels assure *extra* durability. Maintenance costs are greatly reduced, too.

Attractive, long-lasting steel buildings are available in more than 5000 sizes, from 28 sq. ft. to more than 100,000 sq. ft. with clear spans up to 100 ft. Interiors can be finished just like any other building.

Before you make a decision on your building needs, be sure to get the full story on Armco Steel Buildings. Armco Drainage & Metal Products, Inc., Middletown, Ohio.

For complete information *call Western Union and ask for Operator 25*, or mail the coupon below.

ARMCO DRAINAGE & METAL PRODUCTS, INC.
87 Curtis Street, Middletown, Ohio

Send information on Armco Steel Buildings for the following uses:

_____

Approximate size _____

Name _____

Street _____

City _____ *Zone* _____ *State* _____

ARMCO STEEL BUILDINGS

ARMCO®

TEL-A-STORY COMMANDS ATTENTION!

Gives Your Product A Colorful Moving Message That Sells

DRAWS CONVENTION CROWDS . . . PEPS UP POINT OF SALE . . . STIMULATES SALES MEETINGS

The Tel-A-Story Automatic Projector will sell your product using twelve 35mm or 2" x 2" square transparencies on a 156 sq. in. picture screen. Copy changes automatically every six seconds. Economical to own and use. Ideal for any type product or service.

Write Dept. 1 for illustrated brochure and prices

TEL-A-STORY, INC.
523 Main Street, Davenport, Iowa

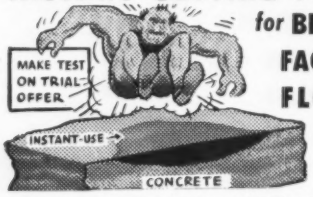
Glickman Corporation
INVESTMENTS
565 Fifth Ave., New York 17, N.Y. Oxford 7-8300

Have You a New Address?

An early notice of change of address is helpful—it is usually necessary to have four weeks' notice. Please include the old address and send the information to Circulation Department,

DUN'S REVIEW
and MODERN INDUSTRY,
99 Church St., New York 8, N.Y.

INSTANT SETTING PATCH for BROKEN FACTORY FLOORS



No traffic tie-ups! Just shovel INSTANT-USE into hole or rut . . . truck over — without waiting! This tough plastic material bonds tight to old concrete — right up to a feather edge. Wears like iron. Won't crack or crumble. Ideal for complete overlay! Used indoors or out. Immediate shipment.

MAIL COUPON for FREE BROCHURE & TRIAL OFFER

INSTANT-USE

FLEXROCK CO. *Offices in Principal Cities*
3663 Filbert St., Philadelphia 1, Pa.

Please send INSTANT-USE Brochure and details of TRIAL ORDER PLAN — no obligation. (Attach coupon to company letterhead).

Name .....
Company .....
Address .....

continued from page 54

hour extra. But you can decide to put that hour in on one day, or work two half-hours overtime on subsequent days.

• *Expand your delegation?* Your time budget can tell you whether there are some duties ordinarily not delegated that, for this emergency, you would like to pass along to your subordinates.

Many of the methods of high—or low—finance may be applied to time manipulation:

"*Discounting for early payment*"—If a dollar saved is a dollar earned, it's equally worth while to avoid frittering away your time. Time waste, like money waste, leaves you doubly bereft: You lose not only your principal but the potential fruits of wise usage.

"*Investment*"—Some applications of time just don't pay off. For instance: straining to train an assistant who lacks the basic qualifications, or devoting time to an assignment better performed by someone else.

From here on you can think up your own favorite phrases relating to money use and work out their implications for time saving. Just to start you off: "dutch treat"; "interest rate"; "mortgage"; "build up a credit."

"I like the time budget concept but it won't fit my job. I'm responsible for a dozen divisional offices in three states. I never know from one hour to the next what emergency situation will arise in any one of these offices. For instance, I wasn't certain this morning if I'd be able to see you."

The executive, head of a far-flung service organization, continued: "I'm afraid my case is like the old lady who noted her income in her budget book and in the opposite column wrote, 'Spent all.' I could list all my tasks and say 'Did none.'"

There's no doubt about it: Any executive who, in effect, is on emergency call every minute of his day is up against a tough problem.

THE AUTHOR • Auren Uris, who has been owner-manager of a small custom-molding shop, was a member of operating management of Celanese Corporation of America for six years, and is now editor of the management development program of the Research Institute of America.

Mr. Uris is a frequent contributor to technical journals and popular magazines. His next book, *The Effective Executive,* is planned for Fall publication by McGraw-Hill.

Yet even this manager was able to introduce a considerable amount of order into a chaotic time situation. He did it, essentially, by *anticipating and recording* the demands on his time.

Made more aware of the nature of his time use by the time budget concept, he requested his contact people in the branch offices to keep him informed of attention-demanding developments at the earliest possible moment.

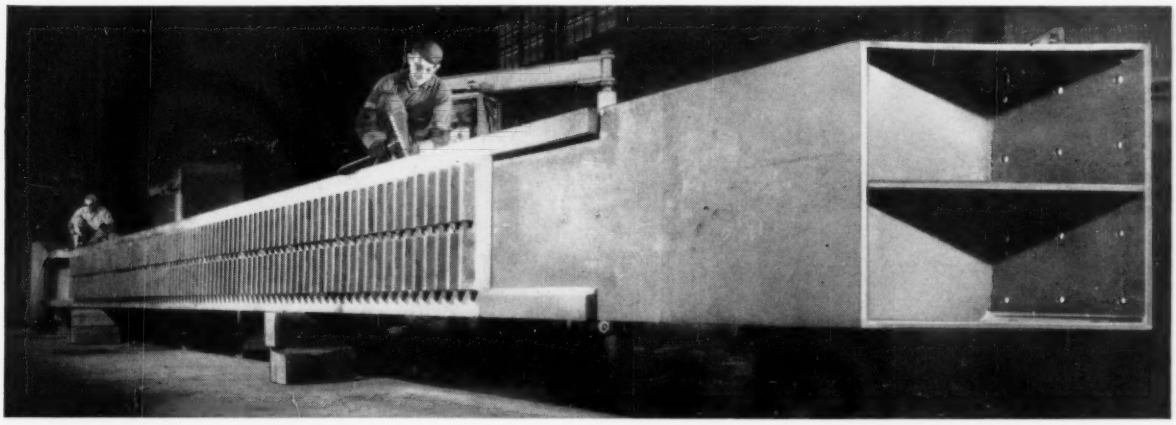
By recording these in the time budget form (he substituted priority symbols—A, B, C for the F, S and V indications) he was able to forestall developments by checking back periodically for briefing END

TIME BUDGET

MONDAY	TUESDAY	WEDNESDAY
F S V	F S V	F S V
F S V	F S V	F S V
F	F	F

Only STEEL can do so many jobs so well

Steelaire Home. The entire structural frame of this house is made from tough, cold-formed steel, so it is unaffected by rot, fungus, and termites. Even more important is the fact that the steel frame resists warping and sagging. It's one of a line of *Steelaire* homes and is made by the U. S. Steel Homes Division of United States Steel.



World's Biggest Crowd. On power shovels, a "crowd" is the arm which moves the dipper and dipper-stick forward and back. It coordinates closely with the lift motion of the dipper, and is a key part in the operation of the shovel which must withstand extremes of stress at any temperature. This is a picture of the biggest crowd ever built, now installed on the biggest power shovel in the world. It's made from USS "T-1" Steel, the remarkable new constructional alloy steel developed by United States Steel. An exceptionally strong and tough steel, it is noted for its welding characteristics. *"USS" and "T-1" are registered trademarks.*

Slap That Bermudavarius! The Talbot Brothers of Bermuda, famous for their colorful calypso music, recently retired their homemade packing-case "bass viol," and proudly premiered in its place the world's first Stainless Steel bass viol (or dog house or Bermudavarius, as it's customarily referred to). An exact replica in USS Stainless Steel of their original homemade design, it was built for them under U. S. Steel's supervision by a well-known manufacturer of Stainless Steel sinks who commented that the fabricating job wasn't difficult—but certainly was *different.*

UNITED STATES STEEL

AMERICAN BRIDGE . . . AMERICAN STEEL & WIRE *and* CYCLONE FENCE . . . COLUMBIA-GENEVA STEEL
CONSOLIDATED WESTERN STEEL . . . GERRARD STEEL STRAPPING . . . NATIONAL TUBE . . . OIL WELL SUPPLY
TENNESSEE COAL & IRON . . . UNITED STATES STEEL HOMES . . . UNITED STATES STEEL PRODUCTS
UNITED STATES STEEL SUPPLY . . . ***Divisions of*** **UNITED STATES STEEL CORPORATION, PITTSBURGH**
UNION SUPPLY COMPANY • UNITED STATES STEEL EXPORT COMPANY • UNIVERSAL ATLAS CEMENT COMPANY

Watch the **United States Steel Hour** on TV every other Wednesday (10 p.m. Eastern time).

7-2213

The FIRST NATIONAL CITY BANK *of New York*

Head Office: 55 Wall Street, New York

75 Offices in Greater New York

71 Overseas Branches, Offices, and Affiliates

Statement of Condition as of June 30, 1957

ASSETS

Cash, Gold and Due from Banks	$1,843,930,533
United States Government Obligations	1,028,143,263
State and Municipal Securities	372,368,499
Other Securities	108,470,561
Loans and Discounts	3,879,892,120
Real Estate Loans and Securities	25,444,752
Customers' Liability for Acceptances	104,098,954
Stock in Federal Reserve Bank	15,000,000
Ownership of International Banking Corporation	7,000,000
Bank Premises	34,887,751
Other Assets	14,909,543
Total	$7,434,145,976

LIABILITIES

Deposits		$6,614,182,518
Liability on Acceptances and Bills	$133,145,476	
Less: Own Acceptances in Portfolio	26,775,818	106,369,658
Due to Foreign Central Banks (*In Foreign Currencies*)		28,825,600
Items in Transit with Branches		18,536,607
Reserves for:		
Unearned Discount and Other Unearned Income		31,853,401
Interest, Taxes, Other Accrued Expenses, etc.		51,468,941
Dividend		6,900,000
Capital (*10,000,000 Shares—$20 Par*)	$200,000,000	
Surplus	300,000,000	
Undivided Profits	76,009,251	576,009,251
Total		$7,434,145,976

Figures of Overseas Branches are as of June 25.

$508,273,868 of United States Government Obligations and $33,664,700 of other assets are pledged to secure Public and Trust Deposits and for other purposes required or permitted by law.

Member Federal Deposit Insurance Corporation

Affiliate of The First National City Bank of New York for separate administration of trust functions

CITY BANK FARMERS TRUST COMPANY

Head Office: 22 William Street, New York

Capital Funds $33,592,460

DIRECTORS

STANLEY C. ALLYN
Chairman of the Board, The National Cash Register Company

GEORGE F. BAKER, JR.
Trustee, George F. Baker Trust

PERCY CHUBB, 2nd
Partner, Chubb & Son

CLEVELAND E. DODGE
Vice-President, Phelps Dodge Corporation

R. GWIN FOLLIS
Chairman of the Board, Standard Oil Company of California

DeWITT A. FORWARD
Senior Vice-President

ROY H. GLOVER
Chairman of the Board, The Anaconda Company

JOSEPH P. GRACE, JR.
President, W. R. Grace & Co.

JOSEPH A. GRAZIER
President, American Radiator & Standard Sanitary Corporation

HARRY C. HAGERTY
Financial Vice-President, Metropolitan Life Insurance Company

H. MANSFIELD HORNER
Chairman, United Aircraft Corporation

KEITH S. McHUGH
President, New York Telephone Company

ROGER MILLIKEN
President, Deering, Milliken & Co., Incorporated

EDWARD S. MOORE, JR.
Executive Vice-President, National Biscuit Company

CHARLES G. MORTIMER
President, General Foods Corporation

ALEXANDER C. NAGLE
20 Exchange Place

CHARLES C. PARLIN
Shearman & Sterling & Wright

RICHARD S. PERKINS
Vice-Chairman of the Board

JAMES S. ROCKEFELLER
President

HOWARD C. SHEPERD
Chairman of the Board

WILLIAM C. STOLK
President, American Can Company

REGINALD B. TAYLOR
Williamsville, New York

ALAN H. TEMPLE
Executive Vice-President

LEO D. WELCH
Vice-President, Standard Oil Company (New Jersey)

ROBERT WINTHROP
Robert Winthrop & Co.

SENIOR MANAGEMENT

HOWARD C. SHEPERD
Chairman of the Board

JAMES S. ROCKEFELLER
President

RICHARD S. PERKINS
Vice-Chairman of the Board

DeWITT A. FORWARD
Senior Vice-President

LEO N. SHAW
Senior Vice-President

J. ED WARREN
Senior Vice-President

GRANT KEEHN
Executive Vice-President and Assistant to the Chairman

J. HOWARD LAERI
Executive Vice-President

GEORGE S. MOORE
Executive Vice-President

ALAN H. TEMPLE
Executive Vice-President

GEORGE A. GUERDAN
Vice-President and Cashier

chemical field. Its chemical products, which accounted for less than 1 per cent of net fixed assets in 1945, account for 54 per cent today. Profitability is increasing. Ratio of market value to book value has grown from 64.4 per cent in 1950 to 107.4 per cent in the most recent year. Earnings per share have likewise increased.

Similarly, when one special-industry machinery manufacturer found it could not fulfill five-year sales and profit objectives with its current products, management used the objectives and the planned scope of future operations as criteria for selection of growth fields for diversification. While doing everything possible to advance product planning in its traditional machinery business, the company has successfully acquired its way into a compatible growth machinery field and into chemicals that serve the original machinery market. Diversification is now contributing two-thirds of earnings per share.

Probably the most difficult decision this company faced in its long-range planning was to enter the entirely new field of chemicals to balance its capital goods business. In making this decision, management specified that the chemicals must serve the company's traditional market and that executives experienced in the chemical field must be obtained through acquisition of another company. Now plans are being revised to expand from this base into additional chemical markets.

The Case Against Planning

There can be legitimate objections to this type of over-all planning if it is too rigid. Over-planning can snarl the company in red tape and interfere with action.

Another objection to long-range planning runs like this: 1900 began a decade of panic; 1910, one of war; 1920, one of recession, boom, and bust; 1930, one of depression; 1940, one of war, 1950, one of prosperity. World political and economic conditions, essentially unpredictable, have had far greater effect on almost any company's operations than the relatively minor factors that are predictable. Therefore, why plan?

There are many possible answers, but underlying them all is the principle that any reasonably sound plan, however lacking in perfection, is better than stumbling along without any guide at all. Also, long-range planning is based on trends, not on outguessing the business cycle. A number of companies have alternate plans based on different levels of business or competitive conditions. Even the aircraft companies, which

"Biddle, I'm going to give you a chance to make something of yourself. You're fired!"

Science has hope—
but hope needs help to find
CAUSE and CURE of **MS***

HELP FILL
MS HOPE CHEST

MS
HopeChest

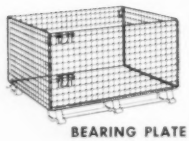
RESEARCH
CLINICS
PATIENT AID

*MULTIPLE SCLEROSIS—
crippling disease of young adults
National Multiple Sclerosis Society
National Headquarters:
257 Fourth Avenue, New York 10, N. Y.
Accredited by National Information Bureau

THE
RIGHT
ANSWER
FOR LARGE PLANTS
OR SMALL

Another typical example
of how Palletainers conserve
floor space in busy produce warehouse.

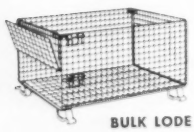
USP PALLETAINERS



BEARING PLATE

HI LODE

WAREHOUSE



BULK LODE

Why pay a premium for wasted floor space when you can make it do double. triple duty by simply storing, stacking or transporting your products or materials in USP Palletainers.

Palletainers are available in a wide range of sizes, types and styles to meet *your* needs. Engineered to handle light and fragile products, or heavy unit loads up to 6000 pounds each with perfect safety and full inventory visibility. They'll stack to the rafters and cut your shipping losses, too. And...when empty, they can be folded flat for space saving and lower return freight rates.

No matter what you manufacture—store or transport—in a large plant or small... *You need* Palletainers!

You can see for yourself how USP Palletainers will quickly pay for themselves in your plant. Ask for your own copy of the big, new Palletainer catalog today. It's profusely illustrated with interesting, money saving applications plus complete specifications and construction details.

USP
UNION STEEL
PRODUCTS CO.
ALBION, MICHIGAN

depend so heavily on uncertain defense expenditures, have plans worked out on a 20-year basis.

One of the difficulties sometimes encountered in actually attempting to install long-range planning is inadequate top management enthusiasm. Where this is the case, it is hardly worth while attempting to install a long-range planning program. Efforts would be more effectively spent in trying to win the top man over, and in the meantime sharpening up some of the tools that will be needed later. For example, sales forecasting can be installed on a self-supporting basis; then profit forecasting can be added. Profit-on-investment measurements can be developed on a product-line basis. Certain programs with long-term implications can be started—for example, management development. This is sometimes referred to as "piecemeal" long-range planning. Master planning must be spearheaded by the chief executive officer.

Another difficulty is getting the enthusiastic participation of the second-echelon operating heads. Some may argue that they have done very well for years without long-range planning and can't take the time for it now. These people must be sold on the basis of the benefits they will get. Frequently the advantages of planning in winning appropriations from top management can be a convincing argument. The enthusiastic support of staff heads should, of course, be enlisted. Usually this is relatively easy.

When Time is Money

Still another difficulty may be excessive tie-up of top-management time in long-range planning committee meetings. This can be minimized by having a central staff specialist lay the ground rules, communicate procedures, coordinate divisional plans into total company plans, and act as secretary or chairman of planning committees. Some companies use second-line operating and staff heads for planning committee work. But it must be remembered that long-range planning within a functional or operating area is basically the responsibility of the head of that area. It is actually one of his major responsibilities in terms of dollar-and-cents effect on the company, and he must see that it is done properly.

Three companies, each for a dif-

ferent reason, have presented *pro forma* financial statements for 1961 to their directors within the past four months. In each case, to drive through the required projections needed to establish five-year objectives, it was necessary to form a staff team composed of an assistant to the president and accounting department members to work with each general manager and his staff.

Steps in Phase II

Phase II is over-all programming of products and services to fulfill the requirements listed in Phase I. Not every company will need product diversification, but profits traditionally follow an S-curve; and if a decline in profits on older, standard products is forecast, new ones must be introduced.

Services, too, can decline in profitability. Realizing this, companies in such fields as transportation and insurance are increasingly active in long-range planning. One commercial bank is in process of preparing one of the first ten-year programs in its field.

If the requirements for future development have been well worked out, the specifications or criteria have been established for the product planning and diversification. Among the fundamental things to be decided in Phase II are:

1. Product planning—redesign of existing products, additional products for present lines, expansion into allied lines, shortening of present lines.

2. Product diversification—selection of a limited number of completely new fields in which to concentrate diversification for greater profit and growth opportunities and to balance or offset limitations of present product fields.

Roy C. Ingersoll, chairman of Borg-Warner Corporation (10 per cent growth rate and 42.8 per cent pre-tax return on stockholder investment), recently stated that one of the main parts of corporation planning for future growth is "planning for external expansion through the acquisition of outside companies in carefully selected fields. . . ."

Steps in Phase III

Of course, the ultimate purpose of long-range planning is the formulation of plans for specific action. Planning ultimately leads to the spe-

BOY!

The all-automatic Dri-Stat '200' really does a job—and it's

Only $195

Boy or girl, if you use or make copies of anything from office correspondence to legal documents, from photos to blueprints, from memos to contracts, you'll be excited, too, when you see what the Dri-Stat '200' can do. For example:

- It copies anything written, printed or drawn—at a cost of only pennies a copy.
- The copies are clear, sharp, black and white, with no muddy in-betweens — something you would expect with any photocopyer, but don't always find.
- Works in normal office light.
- Copies papers up to 9" wide, in any length.
- Eliminates proofreading copies.
- Can be used by anyone, with less than 3 minutes' instruction.
- Pays for itself in time saved!

The proof of the pudding is in the eating, and in this case, we'll stand behind our claims with an actual, no-obligation demonstration. Ask to see the Dri-Stat '200' before you decide on any machine.

And remember: The Dri-Stat '200' is the first truly automatic photocopyer priced under $350.

AUTO-FEED, an exclusive, automatic paper feed is optional. Dri-Stat '200' with Auto-Feed is $245. Also available is the Dri-Stat '400' which copies materials up to 14" wide.

DRI STAT

DK-8

DRI-STAT Division
Peerless Photo Products, Inc.
Shoreham, N. Y.

☐ I'd like to see the Dri-Stat '200' at work in my office.

☐ Send me more information on the low-cost Dri-Stat '200'.

Name.....Title.....

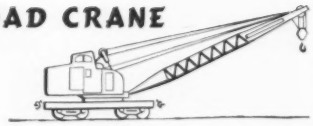
Company.....

Street.....

City.....Zone.....State.....

PEERLESS

THE CAPACITY OF A RAILROAD CRANE



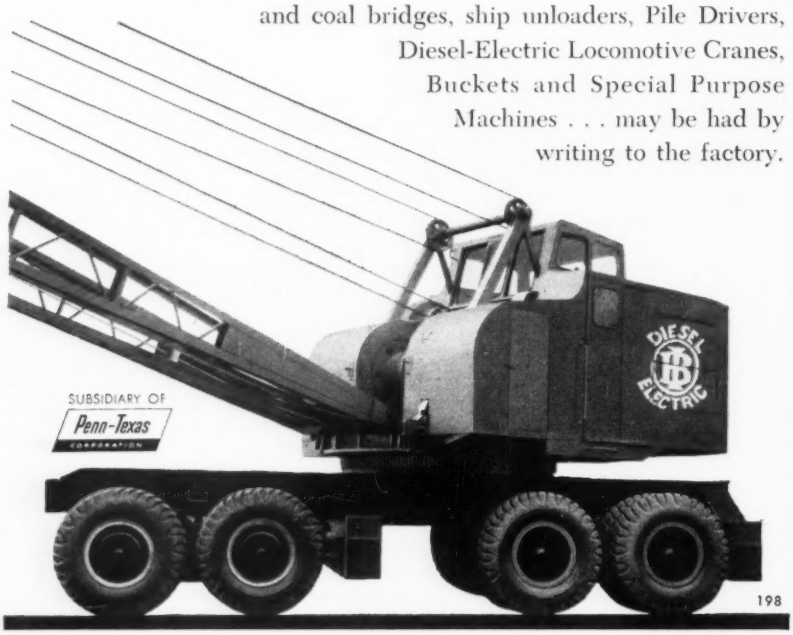
PLUS THE MOBILITY OF A TRUCK

PLUS THE QUICK POWER OF

A DIESEL-ELECTRIC LOCOMOTIVE

For applications requiring the high mobility of a rubber tired unit PLUS the handling capacity heretofore restricted to locomotive cranes, these Diesel-Electric Industrial Brownhoist Wagon Cranes are the answer. Ranging in capacities from 25 to 60 tons, they are ideally suited to such heavy industries as mines, quarries, railroads, steel mills and lumber operations.

Information and specifications on these and other efficient, heavy duty Industrial Brownhoist units . . . including traveling ore and coal bridges, ship unloaders, Pile Drivers, Diesel-Electric Locomotive Cranes, Buckets and Special Purpose Machines . . . may be had by writing to the factory.



BROWNHOIST

CLAMSHELL BUCKET 250 TON WRECKING CRANE COAL-ORE BRIDGE CAR DUMPER LOCOMOTIVE CRANE

INDUSTRIAL BROWNHOIST CORPORATION, BAY CITY, MICHIGAN

DISTRICT OFFICES: New York, Philadelphia, Cleveland, Chicago, San Francisco, Montreal, Canada • **AGENCIES:** Detroit, Birmingham, Houston

cific product projects outlined above and to additional projects that may be carried on throughout the company. These may include old projects with new goals, or established projects pursued with new purposefulness, new enthusiasm, and new coordination.

With the completion of product plans, it is possible to project requirements for marketing, physical facilities, organization, engineering and research, personnel, and so on. These projections will serve as the base for the projection of capital requirements and the studies of methods of financing future company development.

A Case Example

The specific type of program that will emerge in each of the functional areas is illustrated by plans developed for the personnel function by a manufacturer of industrial products.

A long-range personnel plan consistent with total company plans and forecasted future requirements was first set up five years ago. It has since been updated by two major revisions. The over-all personnel objective was, of course, to produce the most effective workforce at the lowest net cost. Four basic personnel programs emerged to meet this objective:

1. *Reduction of operating costs through sound personnel practices.* This involved improved techniques for interviewing, testing, and selection of personnel, reduction of absenteeism, and initiation of a safety program with long-range accident prevention goals.

2. *Personnel procurement.* In this area were improved apprenticeship programs, procedures for upgrading, and community relations programs to present the idea of a career with the company in the most favorable light. Plans were made to locate new plants in the communities which would be most desirable from the point of view of labor supply.

3. *Wage and benefit administration.* Company planning activity has permitted negotiation of labor contracts on a longer-term basis.

4. *Executive development.* This includes college recruitment programs to meet planned long-term requirements, and internal development programs, including rotation of executive candidates in various key

positions to provide them with broadened experience.

The personnel function has set up controls to see how well its programs are progressing toward the goals. These controls are in the form of reports on safety, absenteeism, grievances, and so on, and an annual "audit" of each division's personnel activity. In addition, occasional attitude-morale surveys are conducted among employees by an outside agency.

Similar programs are developed in Phase III for the other functional areas, including marketing, finance, research, operations or production, and administration.

Organization for Planning

Wherever practical (probably in the case of most companies with $10 million sales volume and up) a full-time centralized staff person or group will be needed to provide specialized assistance to top and divisional or functional management in drawing up plans. This does not mean that planning committees should be eliminated or that the benefits of having the organization participate in the preparation of the plans will be negated. It merely means that the operating men should be relieved of as many of the details and technical calculations as possible. A number of companies have small but competent staff groups headed by persons of real stature, who usually report to the chief executive.

In staffing this group and training planning and development personnel, one of the principal objectives is to keep the operation on a pay-as-you-go-or-better basis. Use of at least one full-time person should actually result in an immediate saving, since it will free the chief executive and the management committees from much of the detail (though not from policy responsibility). This is in addition to the virtually immeasurable long-term savings derived from superior results based on superior planning practices.

A number of companies have combined long-range planning (i.e., coordination of company and divisional planning, establishment of procedures, and general guidance of planning activities) with three other responsibilities in a so-called commercial development staff activity. These new responsibilities are:

FOR BUILDINGS

FOR FACTORIES

FOR RESTAURANTS

It's new!

A COMPACT PACKAGE UNIT

for connecting to remote installation

Can be placed in wall recesses, under counters, on shelves or in cupboards and connected to any type Halsey Taylor fountain.

Removable access and ventilation panel available for wall recess installation.

This new quality-built space-saving package unit, in every way, reflects the usual high standards of workmanship and dependability for which Halsey Taylor drinking-water fixtures have become famous. Ask for further information.

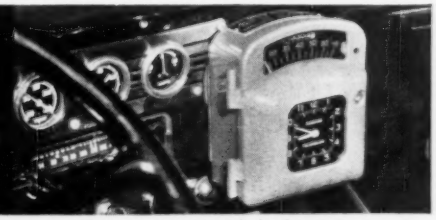
The Halsey W. Taylor Co., Warren, Ohio

Halsey Taylor®

COOLER FOUNTAINS

73

no matter how many trucks your firm operates, remember...



Wagner-Sangamo TACHOGRAPHS lessen maintenance costs, improve operating performance, and encourage safer driving habits!

The trip information recorded on Tachograph charts will guide you in route planning, preventive maintenance, and driver training.

The Tachograph is a recording speedometer which records this information: when truck started; speeds and distance traveled; time and duration of stops; when engine idled. Illuminated dials show driver time of day, total mileage, and speed (or r.p.m.). A red light warns the driver when your pre-determined speed limit is exceeded.

For more information on how Tachographs can trim your operating costs and help your safety record, mail the coupon today.

Wagner Electric Corporation

6439 PLYMOUTH AVE., ST. LOUIS 14, MO.

Please send a copy of Bulletin SU-3.

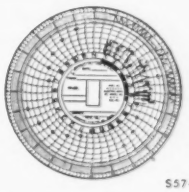
Name and Position_____

Company_____

Address_____

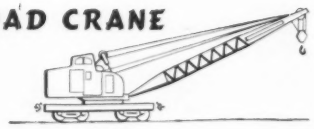
City_____ State_____

We operate_____ (NUMBER) Vehicles



S57-7

THE CAPACITY OF A RAILROAD CRANE



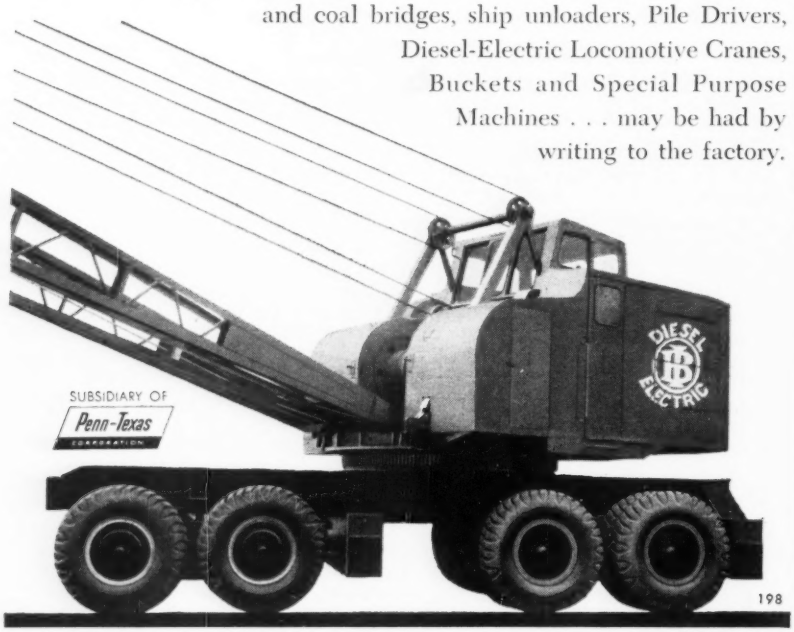
PLUS THE MOBILITY OF A TRUCK

PLUS THE QUICK POWER OF

A DIESEL-ELECTRIC LOCOMOTIVE

For applications requiring the high mobility of a rubber tired unit PLUS the handling capacity heretofore restricted to locomotive cranes, these Diesel-Electric Industrial Brownhoist Wagon Cranes are the answer. Ranging in capacities from 25 to 60 tons, they are ideally suited to such heavy industries as mines, quarries, railroads, steel mills and lumber operations.

Information and specifications on these and other efficient, heavy duty Industrial Brownhoist units . . . including traveling ore and coal bridges, ship unloaders, Pile Drivers, Diesel-Electric Locomotive Cranes, Buckets and Special Purpose Machines . . . may be had by writing to the factory.



SUBSIDIARY OF
Penn-Texas
CORPORATION

BROWNHOIST

CLAMSHELL BUCKET 250 TON WRECKING CRANE COAL-ORE BRIDGE CAR DUMPER LOCOMOTIVE CRANE

INDUSTRIAL BROWNHOIST CORPORATION, BAY CITY, MICHIGAN

DISTRICT OFFICES: New York, Philadelphia, Cleveland, Chicago, San Francisco, Montreal, Canada • **AGENCIES:** Detroit, Birmingham, Houston

cific product projects outlined above and to additional projects that may be carried on throughout the company. These may include old projects with new goals, or established projects pursued with new purposefulness, new enthusiasm, and new coordination.

With the completion of product plans, it is possible to project requirements for marketing, physical facilities, organization, engineering and research, personnel, and so on. These projections will serve as the base for the projection of capital requirements and the studies of methods of financing future company development.

A Case Example

The specific type of program that will emerge in each of the functional areas is illustrated by plans developed for the personnel function by a manufacturer of industrial products.

A long-range personnel plan consistent with total company plans and forecasted future requirements was first set up five years ago. It has since been updated by two major revisions. The over-all personnel objective was, of course, to produce the most effective workforce at the lowest net cost. Four basic personnel programs emerged to meet this objective:

1. *Reduction of operating costs through sound personnel practices.* This involved improved techniques for interviewing, testing, and selection of personnel, reduction of absenteeism, and initiation of a safety program with long-range accident prevention goals.

2. *Personnel procurement.* In this area were improved apprenticeship programs, procedures for upgrading, and community relations programs to present the idea of a career with the company in the most favorable light. Plans were made to locate new plants in the communities which would be most desirable from the point of view of labor supply.

3. *Wage and benefit administration.* Company planning activity has permitted negotiation of labor contracts on a longer-term basis.

4. *Executive development.* This includes college recruitment programs to meet planned long-term requirements, and internal development programs, including rotation of executive candidates in various key

positions to provide them with broadened experience.

The personnel function has set up controls to see how well its programs are progressing toward the goals. These controls are in the form of reports on safety, absenteeism, grievances, and so on, and an annual "audit" of each division's personnel activity. In addition, occasional attitude-morale surveys are conducted among employees by an outside agency.

Similar programs are developed in Phase III for the other functional areas, including marketing, finance, research, operations or production, and administration.

Organization for Planning

Wherever practical (probably in the case of most companies with $10 million sales volume and up) a full-time centralized staff person or group will be needed to provide specialized assistance to top and divisional or functional management in drawing up plans. This does not mean that planning committees should be eliminated or that the benefits of having the organization participate in the preparation of the plans will be negated. It merely means that the operating men should be relieved of as many of the details and technical calculations as possible. A number of companies have small but competent staff groups headed by persons of real stature, who usually report to the chief executive.

In staffing this group and training planning and development personnel, one of the principal objectives is to keep the operation on a pay-as-you-go-or-better basis. Use of at least one full-time person should actually result in an immediate saving, since it will free the chief executive and the management committees from much of the detail (though not from policy responsibility). This is in addition to the virtually immeasurable long-term savings derived from superior results based on superior planning practices.

A number of companies have combined long-range planning (i.e., coordination of company and divisional planning, establishment of procedures, and general guidance of planning activities) with three other responsibilities in a so-called commercial development staff activity. These new responsibilities are:

FOR BUILDINGS

FOR FACTORIES

FOR RESTAURANTS

It's new!

A COMPACT PACKAGE UNIT

for connecting to remote installation

Can be placed in wall recesses, under counters, on shelves or in cupboards and connected to any type Halsey Taylor fountain.

Removable access and ventilation panel available for wall recess installation.

This new quality-built space-saving package unit, in every way, reflects the usual high standards of workmanship and dependability for which Halsey Taylor drinking-water fixtures have become famous. Ask for further information.

The Halsey W. Taylor Co., Warren, Ohio

Halsey Taylor®

COOLER FOUNTAINS

73

Wagner-Sangamo TACHOGRAPHS lessen maintenance costs, improve operating performance, and encourage safer driving habits!

The trip information recorded on Tachograph charts will guide you in route planning, preventive maintenance, and driver training.

The Tachograph is a recording speedometer which records this information: when truck started; speeds and distance traveled; time and duration of stops; when engine idled. Illuminated dials show driver time of day, total mileage, and speed (or r.p.m.). A red light warns the driver when your pre-determined speed limit is exceeded.

For more information on how Tachographs can trim your operating costs and help your safety record, mail the coupon today.

Wagner Electric Corporation

6439 PLYMOUTH AVE., ST. LOUIS 14, MO.

Please send a copy of Bulletin SU-3.

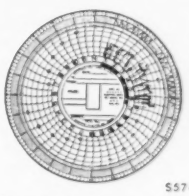
Name and Position_____

Company_____

Address_____

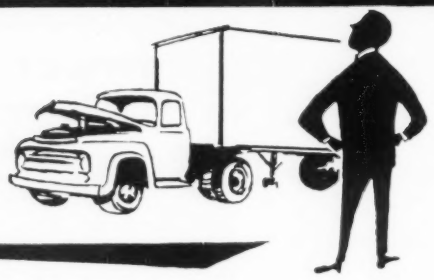
City_____ State_____

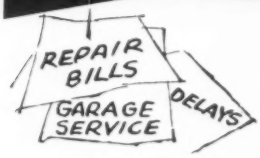
We operate_____ Vehicles
(NUMBER)



S57-7

HOW CAN I STOP TRUCK UP-KEEP WORRIES?





YOU CAN ELIMINATE not only maintenance worries, but licensing, insurance and a thousand other headaches when you LEASE your trucks from an NTLS member-company. Trucks are engineered to your needs, always in top appearance and operating condition. Don't use your capital to add to your maintenance worries! Full-service NTLS truckleasing furnishes *everything* but the driver. Write for folder.

National
TRUCK LEASING SYSTEM
23 E. JACKSON BLVD. • SUITE D-8
CHICAGO 4, ILLINOIS
Members in principal cities

• When you have a Pitney-Bowes MailOpener, everyone in the office gets going on the day's work many minutes earlier. The time saved each day means lots of dollars each year.

• A girl slitting envelopes open with a knife can't begin to equal the speed of a MailOpener. It swiftly, safely snips a hairline edge off the envelopes—of any size, thickness or stock—as fast as they can be fed. Three models, hand or electric.

• **Free Trial:** The nearest Pitney-Bowes office will demonstrate a MailOpener in your own office on your own incoming mail. No obligation. Make that phone call today. Or write for free illustrated booklet.

FREE: *Send for handy desk or wall chart of Postal Rates, with parcel post map and zone finder.*

PITNEY-BOWES
MAILOPENER
PITNEY-BOWES, INC.
1566 Walnut Street, Stamford, Conn.
...originator of the postage meter...
offices in 103 cities in U.S. and Canada

1. *New product planning and acquisitions.* To conduct comprehensive searches for and systematic appraisals of completely new products; conduct preliminary negotiations and assist in final negotiation and integration of acquired companies and products. (New product development closely related to existing divisions is handled by the divisions themselves.)

2. *Market research coordination.* To assist divisional management in market research relating to existing or proposed products.

3. *Economic research.* To inform management and divisions of general business conditions and market trends for more accurate and more uniform forecasting.

Line and Staff

The basic principle is that planning itself is a line function, because, obviously, the line people are accountable for carrying out the plans. However, a staff director of planning has proved vital in instructing the line in many ways. These include: uniform planning techniques; conducting certain phases of planning which the line may not be geared to do, such as market research or economic research; summing up divisional plans into total company plans; and actually carrying out certain phases of planning that are outside the province of any of the existing line executives—e.g. planning and developing completely new products, or company acquisitions in new fields.

Twenty-eight functions in long-range planning, and the location in the organization where they are frequently carried out, are shown in the chart on page 42. Notice that the director of planning (the staff man) participates in all these steps, in a consulting capacity at the very least.

A wide range of industries now has personnel trained in the specialized techniques of this work—which quickly permit a qualified but inexperienced man to become efficient in the commercial development area.

How Far Ahead?

A typical company undertaking long-range planning for the first time will develop a five-year plan in a fair amount of detail, and a more general ten-year plan. In addition, of course, this company may have a

one-year detailed budget and a two- or three-year extended budget, but it is often advantageous not to conduct the planning sessions at the time of year when the budget is prepared. Budgeting must be conducted on a conservative financial basis. Long-range planning, although realistic and practical, has more of a goal-seeking flavor.

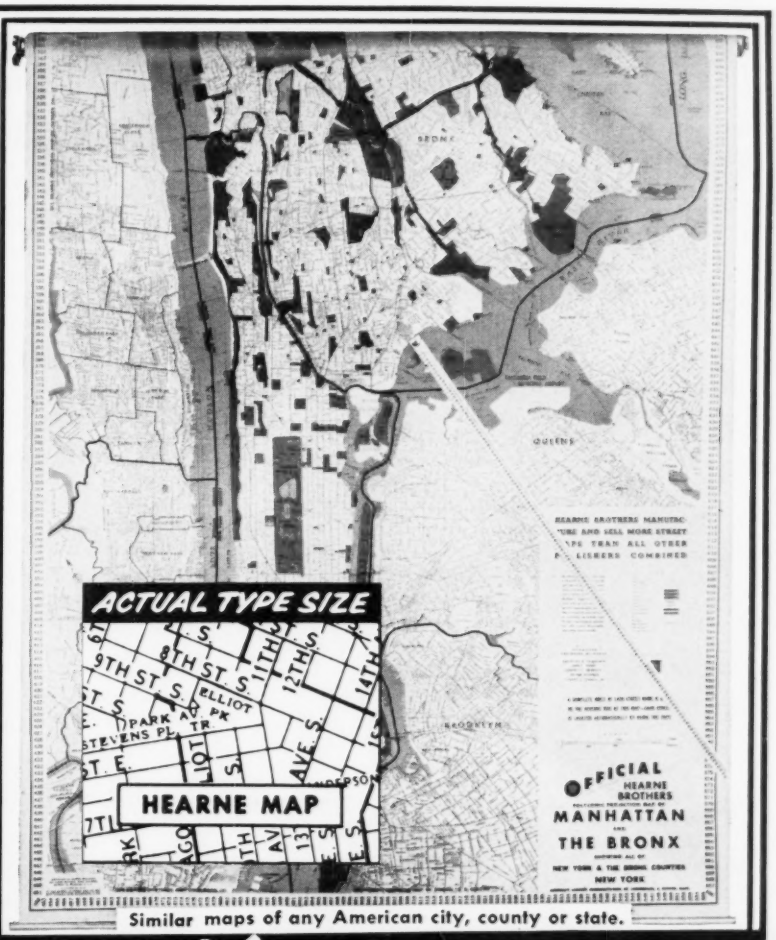
As the length of time its planning would cover, one company took its product development cycle from inception to full commercial realization—an estimated five years. Other governing factors may include market development time, resources development time, physical facilities development time, time required for orderly financing, pay-off time for capital investment, and management development time.

Five years is a bare minimum for comprehensive long-range planning. Once established on this five-year basis, a company can plan further ahead as its own circumstances warrant, either on a comprehensive basis with decreasing amounts of detail, or for certain individual functions such as management development.

The Payoff from Planning

Long-range planning has been used for many years in some industries—oil, for example. In others, such as fabricated metal products, it is quite new. Yet even the most advanced practitioners are usually the first to admit that they have a great deal to learn in this fast-developing field.

The most commonly recognized benefit of long-range planning is that it provides a framework for the tactical guidance of existing operations, such as timely plant expansion. But it has another important, and relatively unfamiliar, advantage to offer: as a strategic tool, it enables a company to develop entirely new concepts and areas of operation. And the actual process of long-range planning can be simpler than many executives realize. The principal requirement is recognition of the need for a continuing master program for the future growth of the company, developed through a well organized step-by-step process. Once management has clearly defined the specific requirements for the company's future development, short-range as well as long-range planning becomes simpler and more productive.



Similar maps of any American city, county or state.

SAVE 1/3 in TRUCK MILES with HEARNE CITY MAPS!

Send for FREE ILLUSTRATED CATALOG, containing seven large scale maps showing in color the area covered by our 400 large scale street maps. Absolutely no obligation, no salesman will call.

MEANDERING DELIVERIES

Route your trucks the SHORTEST WAY every trip. The time and gas used by your drivers looking for unknown streets will buy a hundred maps like Hearne's Street Map of your city and county area.

Printed in five colors; street names in big, black type, and instantly spotted with Hearne's patented, automatic Street Finder. (See border)

Over 100,000 truck owners use Hearne maps every day to give customers better service and cut truck mileage. Many users claim they save the cost of the map in a single day's use.

HEARNE BROTHERS

America's Largest Manufacturers of Commercial and School Maps

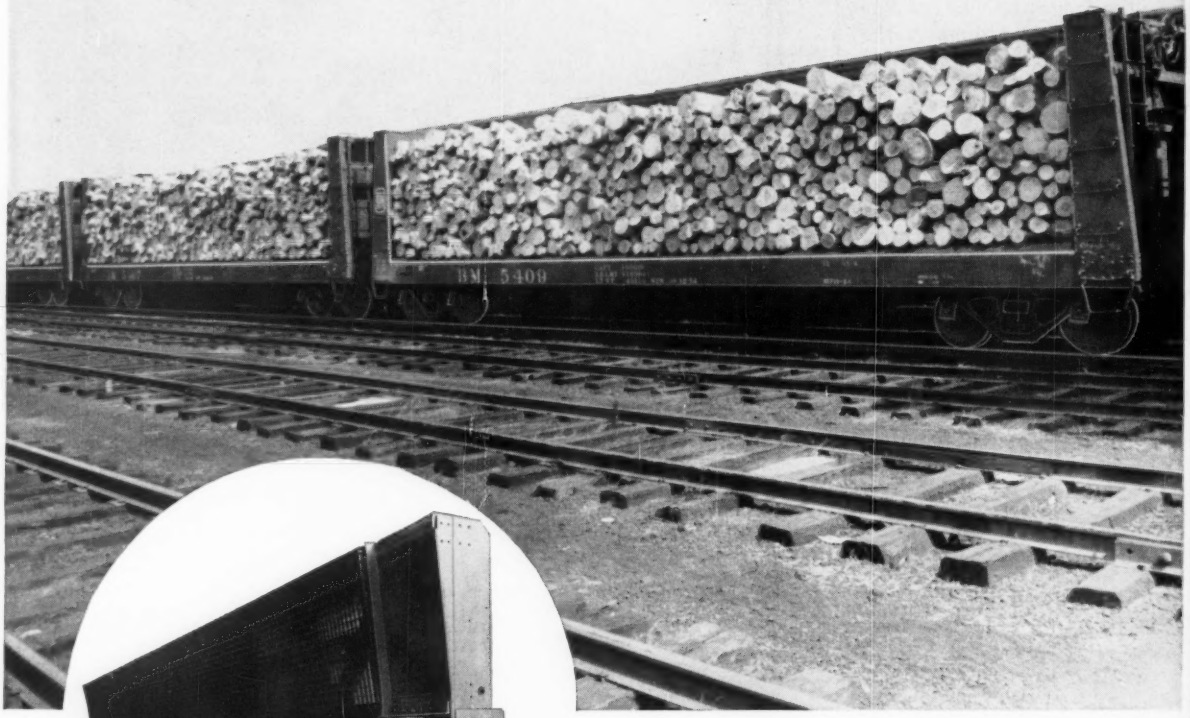
23th Floor National Bank Bldg., Detroit 26, Mich.

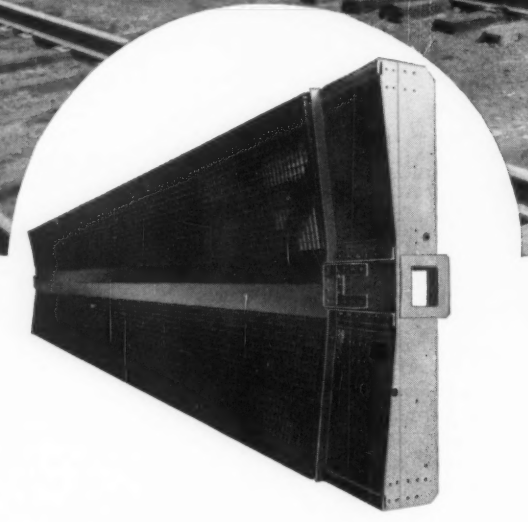
44" by 65" wall maps of any American city, county, state
$52.50 each F.O.B. your office

If in your operation you use salesmen, our city-county street maps will save your men considerable time. Test after test conclusively proves that this type personnel will make more calls more often if you make it convenient. Our city-county street maps locate instantly and mechanically for your salesmen, any street address in any American city. We will promptly mail one of your secretaries a brochure.

TOOK THESE CARS

to take pulp-billet poundings!





The Boston & Maine Railroad hauls a lot of hardwood-pulpwood for Champion-International Paper Company. And until a few years ago, when cars pictured here were put into service, both loading and carrying the pulp-billets raised havoc with the Railroad's rolling stock. Dropped from considerable heights during "grapple" loading, the billets battered steel-plate decking. Bulkheads collapsed under the impact and strain.

Presented with the problem, International's Railway Division came up with the most effective solution — and at a cost of $1,000 less per car than competitive designs. The answer was an all-welded car, designed in collaboration with the B & M's Mechanical Department and engineers of International-Champion, featuring a high-tensile steel "Recta-Grid" decking. Combined with prefabricated bulkheads and underframe components of the same basic design . . . shipped to the Railroad's shops for assembly . . . the completed components were transformed into rugged rail-transports that have well proved their ability to take pulp-billet poundings, load in and load out.

This same teamwork between user, carrier, and International's Railway Division has resulted in profitable advancements for many of the nation's best-known railroads. Your inquiries concerning specialized component fabrications are welcomed.

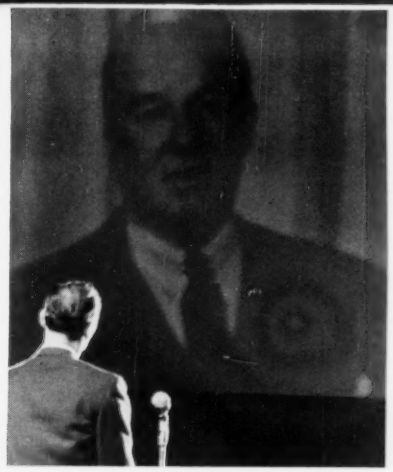
INTERNATIONAL SERVICE

RAILWAY DIVISION

INTERNATIONAL STEEL COMPANY

1323 EDGAR STREET • EVANSVILLE 7, INDIANA

Meeting in Manhattan, American Machine & Foundry Company stockholders quiz, via closed-circuit TV, officers at similar session in Chicago, as well as those on New York dais.



New York mike lets stockholder put question to board chairman in Chicago, on screen.

STOCKHOLDERS TALK BACK—ACROSS 1,000 MILES

SOME DAY you may attend the annual meeting of a corporation by turning on your TV set, or at most by driving over to the nearest town hall, and vote your shares by pushing a button or having a teller in your home town tally them. If so, perhaps you'll look back on the 1957 annual meeting of American Machine & Foundry Co. as the start of it all.

AMF's annual meeting, held in the Grand Ballroom of New York's Sheraton-Astor Hotel, was paralleled by a simultaneous session in the Crystal Ballroom of Chicago's Sheraton-Blackstone. Stockholders and officers at both meetings were in constant two-way communication through closed-circuit TV. A stockholder in New York, for instance, could ask direct questions of Board Chairman Morehead Patterson, who conducted the Chicago session. And a stockholder at the Chicago meeting could direct queries at General Walter Bedell Smith, vice chairman of the board, and his colleagues on the dais in New York. In each city, the speaker's image appeared on a big screen at the side of the ballroom.

There was only one difference. While shareholders in New York could vote in person, those in Chicago could not—although many, of course, had submitted proxies to someone attending the legal annual meeting in New York.

Mrs. Wilma T. Soss, indefatigable battler for more women on boards of directors and more democracy in corporation - stockholder relations, and owner of at least one share in practically everything, didn't pass up the opportunity to plug her ideas.

She congratulated Chairman Patterson and hoped that next year shareholders in Chicago, as well as those in New York, would be able to vote. But in seeking this outcome, Mrs. Soss may be taking on an adversary tougher to deal with than any of the boards of directors she has previously challenged. Corporations are chartered by the states—and the states are very specific as to where the annual meetings may be held. To bring about uniform legislation permitting voting at simultaneous, multi-state meetings might require converting 48 state legislatures and countless lawyers. Doughty warrior though she may be, Mrs. Soss won't find that easy.—A.G.L.

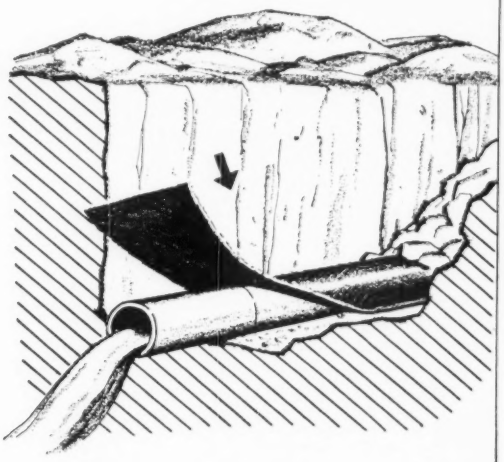
Electronic marvels notwithstanding, Board Chairman Morehead Patterson shows, at end of unofficial Chicago meeting, that old-fashioned face-to-face talk wins friends and influences people, too.

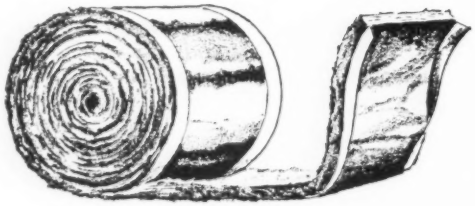
The printed word also holds its own as a stockholder, awaiting start of Chicago session, goes over company's annual report on its diverse activities, perhaps to frame a question for New York.

New Miracles with Glass Fibers!

MICRO-QUARTZ TAKES THE TORCH TEST!

3/16" OF **MICRO-QUARTZ** TURNS BACK 2,500°F! THIS LIGHTWEIGHT (3 LBS/CU. FT.) INSULATION CAN WITHSTAND TEMPERATURES ABOVE 2,000° F. FOR PROLONGED PERIODS AND IT TAKES VIBRATION IN STRIDE.





NEW HOME INSULATION DOES MORE THAN JUST INSULATE

IT'S L·O·F GLASS FIBERS' NEW **THERMO-SENSITIVE REFLECTIVE INSULATION.** MADE FROM LONGER, FINER GLASS FIBERS, IT ACTUALLY HELPS HOMES COOL OFF IN 1/5 TO 1/10 THE TIME IN SUMMER... RESPOND FASTER TO THERMOSTATIC CONTROL IN WINTER.

NEW FILTER-MAT FOR FARM OR FACTORY

NEW **"TILE-GUARD"** POROUS MAT SLOWS SOIL BUILD-UP IN DRAINAGE TILE, SO WATER FLOWS FREELY YEARS LONGER. IN THE SAME WAY, IT HELPS FOUNDATION OR SEPTIC TANK TILING OPERATE MORE EFFICIENTLY, LAST LONGER. ALSO, IT'S AN IDEAL DUST FILTER FOR FORCED-AIR SYSTEMS.

Interested?

These examples show how developments pioneered by L·O·F Glass Fibers Company are meeting the expanding needs of many markets. Perhaps one of the steady stream of new and improved glass and quartz fiber products from our enlarged Technical Center will fill the bill on your company's current or contemplated projects. To get the information you need, write: *L·O·F Glass Fibers Company, Dept. 77-87, 1810 Madison Avenue, Toledo 1, Ohio.*

L·O·F GLASS FIBERS

L·O·F GLASS FIBERS COMPANY · TOLEDO 1, OHIO

FOREMEN PROGRESS IN MANAGEMENT RANK

HAS THE STATUS of front-line supervisors as management men actually improved in recent years? The responses to a recent nationwide survey indicates that the answer is a healthy "yes."

This survey, like a similar one in 1953, was conducted by the National Foremen's Institute, New London, Conn. Comparing the new findings with the old, NFI notes improvements in a good many areas. Even in areas not covered in the earlier study, "good" practices are in effect in a substantial percentage of the responding companies.

This year, of the 375 companies queried by NFI, from 150 to 288 responded to different items in a 17-point questionnaire.

Four years ago, 51 per cent of the companies gave no special training to foremen; this year only 5 per cent neglect it. Where 25 per cent gave instruction in 1953 in conference leadership, production techniques, cost control, and similar subjects, the percentage is 31 in 1957. No companies queried four years ago gave instruction in subjects like accounting, economics, business finance; today 11 per cent do. On-the-job training in employee relations has risen from 7 to 31 per cent in the same period.

Two-thirds of the concerns did not supply foremen with policy manuals in 1953. This year, 54 per cent do issue such manuals, supplemented periodically.

Similarly, supervisors in only 3 per cent of the plants were reported this year as not participating in some kind of management meeting. Four years ago, the percentage was 13. Otherwise, there has been little change in the frequency of participation. Comparative figures are: weekly meetings, 26 per cent in 1953, 28 per cent in 1957; semimonthly meetings, unchanged at 7 per cent; monthly meetings, unchanged at 19 per cent; participation on an irregular basis "when necessary," 35 per cent in 1953, 43 per cent in 1957.

One interesting change noted is a strong trend towards company-prepared literature. Four years ago, 59 per cent of companies provided newsletters published by business advisory services, 11 per cent provided their own literature, 30 per cent furnished neither. This year 41 per cent use outside-published material, 40 per cent provide their own company literature, 17 per cent furnish foremen with a publication designed for all management, and only 2 per cent leave the foremen to pick up their information wherever they can find it. In 35 per cent of the plants, more than one kind of reading matter is furnished.

In two other areas, comparative figures are available. Foremen in 58 per cent of the plants pass out paychecks to their own crews; this is an increase from the 45 per cent that prevailed in 1953. Also, four years ago only 44 per cent of foremen retained seniority permanently, or for a probationary period after promotion. This year the figure is 55 per cent. However, accumulation of sen-

---

Paychecks by remote control cut costs, speed service

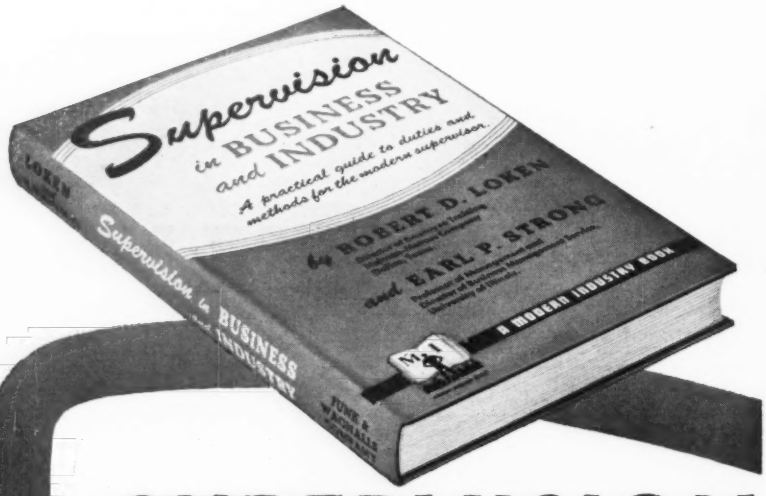
Switch on Teletypewriter in Hartford, Conn., starts transmission of paycheck data to construction site over 1,300 miles away.

A leased telephone line connecting company headquarters in Hartford, Conn., with an Alabama construction site is enabling F.H. McGraw & Company to maintain centralized control of payroll accounting for operations more than 1,000 miles away. Teletypewriters at the distant sites transmit payroll data daily to headquarters, where an IBM payroll computer performs the calculations and then transmits the data to automatic checkwriters at the job site.

At Alabama site, paymaster signs checks as they come out of the Teletype machine and pays off 200 workers almost immediately.

The system was inaugurated this summer for some 200 employees on a construction job in Brewton, Ala., and it is planned to use the same leased AT&T line soon for two other projects in Cresaps, W. Va., and Lakehurst, N.J. Eventually the company hopes to use the rapid payroll set-up for all job-site employees, who usually total more than 6,000.

The system gives better daily control of costs, eliminates the need for finding competent payroll clerks in out-of-the-way places, cuts costs, and speeds checks. On-the-site paymaster needs only to sign the checks after transmission.


Supervision
in BUSINESS
and INDUSTRY
A practical guide to duties and methods for the modern supervisor
by ROBERT D. LOKEN
and EARL P. STRONG
A MODERN INDUSTRY BOOK

SUPERVISION
in business and industry
your up-to-date guide to efficient supervision

Good foremen and supervisors today must be trained not only in job skill, but also in job management and man management. This new book provides a practical training program emphasizing the latter two phases of modern supervision.

With its help you can develop supervisors for your company who are thoroughly familiar with the basic principles of good management and how to apply them to everyday problems . . . who are valuable as "leaders" rather than "bosses" . . . who, through individualized, humanized supervision, help workers get the jobs done in the quickest, most efficient, least expensive manner.

Written in simple language from the standpoint of the supervisor, it covers step by step the duties of the line and staff supervisor in organizing, planning, and controlling production, from evaluating personnel requirements, training the new employee, delegating responsibility, to handling job breakdowns, grievances, orders, and so forth.

Developed through a series of supervisory conferences throughout the country under numerous instructors for various training programs, the plan outlined in this book makes use of the best ideas, methods, and procedures of more than 50,000 foremen and supervisors from all types of business and industry.

by
ROBERT D. LOKEN
Assistant to the Publisher, Life Magazine.

and
EARL P. STRONG
Director of Management Development, Civil Service Commission, Washington, D. C.

The material presented here was applied in thousands of work situations, and the improvement in the quality of supervision reflected in increased output.

A MODERN INDUSTRY BOOK
314 pages 5½ x 8¼ $3.50

10 DAYS' FREE Examination

MODERN INDUSTRY BOOKS B8
99 Church Street, New York 8, N.Y.

Please send me a copy of SUPERVISION IN BUSINESS AND INDUSTRY by Robert D. Loken and Earl P. Strong for 10 days' free examination on approval. After 10 days I agree to remit $3.50 plus postage, or return the book post-paid. (We pay postage on orders with remittance. Same return privilege.)

Name .....
Address .....
City ..... Zone .... State.....
Position .....
Company .....

iority after promotion is down from 42 per cent to 29 per cent in the same period, and the loss of seniority is the rule in 16 per cent of the companies this year as against 14 per cent in 1953. In this area, neither management nor the production workers' unions, who have haggled over this policy for several years, have won a clearcut decision.

Foremen who must punch time clocks seem to be a vanishing race. In 1953, 39 per cent of the companies required this practice; today only 17 per cent do. Against the 34 per cent who required no timekeeping on foremen four years ago, 52 per cent had adopted this policy by 1957. There has been a slight increase—from 27 per cent to 31 per cent—in companies requiring that time be turned in on weekly slips or by some similar method.

On matters for which no four-year comparison is available, there are some surprises, as well as some more predictable findings. For example, 43 per cent of companies have no compulsory retirement age for first-line supervisors, 11 per cent require retirement at ages 66 to 70, and 46 per cent set the limit at 65.

In only 2 per cent of companies

"I hear our union is against some kind of 'ride-to-work' law. What's wrong with riding to work?"

Communications crossup

Communications problems are not exclusively a management worry, as the cartoon above (from *The Machinist*, weekly newspaper of the International Association of Machinists) indicates.

are foremen's views not solicited on the labor agreement. Forty-five per cent of the companies solicit opinions at meetings. Another 45 per cent do this by means of day-to-day contacts, and 8 per cent through written forms. Thirty per cent use more than one method.

In 10 per cent of the concerns, foremen determine disciplinary action to be taken under them. In 46 per cent they initiate the disciplinary action and in 44 per cent they merely recommend. In hiring, 27 per cent of companies have foremen interview prospects, while 41 per cent do not. Another 32 per cent ask foremen both to interview and to determine who will be hired.

The National Foremen's Institute has broken its responses down by areas—New England, Middle Atlantic, Midwest, South, and West—but one thing it found practically nowhere was unionization of foremen. Only two plants--one in New England, one in the Midwest—constituting 1 per cent of the sample in response to this item, have unionized foremen.

For long-range labor planning

Management men who want to plan labor and personnel policies further ahead than next season's production needs or next year's union negotiations will find some interesting ten-year forecasts on population trends and their manpower implications in a new U.S. Department of Labor chart book, "Our Manpower Future —1955–65" (30 cents, Superintendent of Documents, Government Printing Office, Washington 25, D.C.).

Some major conclusions:

1. The workforce will grow adequately to meet anticipated gross national product in 1965.

2. But there will be no significant increase of workers in the age range 25 to 44, making it necessary to plan development and training of other age groups.

3. Nearly half the increase in the labor force will be in the 14 to 24 age range, people now in elementary schools and early high school grades.

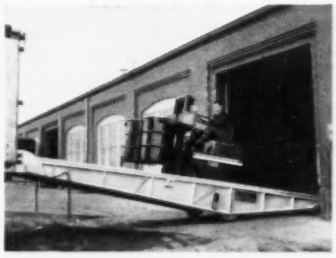
4. There will be nearly five million more members of the workforce who are 45 years of age or older.

5. More than half of the new members of the labor force will be girls and women. —A.G.L.

FOREMAN: That new Magliner Magnesium Loading Ramp has sure cut down our loading time! Just about in half . . . I'd say. It used to take three of my best men an hour to load a rail car . . . half an hour for a good sized truck. Now, with our new portable Magliner, one man does both jobs in less than half that time!

PLANT MANAGER: You're right, Bill. It's an all around cost saver too. Our figures show that in direct-labor savings alone, it paid for itself in less than 6 weeks.

Ground level loading problems? Inadequate dock facilities . . . yard car loading? Put a mobile *Magliner Magnesium Loading Ramp* to work for you! One man moves it! Bridge design, all-welded construction for rugged dependable service. Available in a wide range of standard sizes. Load capacities to 16,000 lbs.



Write for Bulletin DB-211

MAGLINE INC., P. O. BOX 138, PINCONNING, MICH.

Canadian Factory: Magline of Canada Ltd., Renfrew, Ont.

Magliner Mobile Loading Ramps

Coming Next Month

New things are ahead in packaging—better protection, greater sales appeal, more efficient processes. In the September issue DR&MI presents a major editorial feature that will include a special report on the plans of package users, a survey of new trends in package design, a checklist of packaging ideas, and a special report on "Packaging in the Atomic Age."

ADVERTISING INDEX

ACME VISIBLE RECORDS, INC. 33
E. H. Brown Advertising Agency
ALLIED RESEARCH PRODUCTS, INC. 14
Emery Advertising Corporation
ALVA ALLEN INDUSTRIES. 74
Cooper Advertising Agency
AMERICAN CREDIT INDEMNITY COMPANY 70
VanSant, Dugdale & Company
AMERICAN LITHFOLD CORPORATION 37
Burlingame-Grossman, Advertising
AMERICAN PULLMAX COMPANY, INC. ... 96
Grimm & Craigle, Inc.
AMERICAN TELEPHONE & TELEGRAPH COMPANY. ..... Cover III
N. W. Ayer & Son, Inc.
AMERICAN TRUST COMPANY. 88
McCann-Erickson, Inc.
ARMCO DRAINAGE & METAL PRODUCTS, INC. 101
N. W. Ayer & Son, Inc.

BABCOCK & WILCOX COMPANY, THE. 57
O. S. Tyson and Company, Inc.
BAKELITE COMPANY, A DIVISION OF UNION CARBIDE CORPORATION 30–31
J. M. Mathes, Inc.
BALTIMORE & OHIO RAILROAD. 32
The Richard A. Foley Advertising Agency
BIG JOE MANUFACTURING COMPANY. ... 11
Reincke, Meyer & Finn, Inc.
BORG-WARNER CORPORATION. 29
Rogers & Smith, Advertising
BREUER ELECTRIC MFG. CO. 95
Grimm & Craigle, Inc.
BRUNING, CHARLES, COMPANY, INC. 77
H. W. Kastor & Sons Advertising Co., Inc.

CAMBRIDGE WIRE CLOTH COMPANY. 81
Emery Advertising Corporation
CHASE MANHATTAN BANK, THE. 34
Albert Frank-Guenther Law, Inc.
CHESAPEAKE & OHIO RAILWAY. 66–67
Robert Conahay, Inc.
COLUMBIA RIBBON & CARBON MFG. CO., INC. 97
E. M. Freystadt Associates, Inc.
COMMERCIAL CREDIT COMPANY. 28
VanSant, Dugdale & Company, Inc.
CONSUMERS POWER COMPANY. 80
Commonwealth Services, Inc.
CURTISS-WRIGHT CORPORATION. 20
Burke Dowling Adams, Inc.

DEPENDABLE MFG. CO. 93
Goodsell Advertising Agency
DRAKE, STARTZMAN, SHEAHAN AND BARCLAY. 98
Marsteller, Rickard, Gebhardt and Reed, Inc.
DU MONT LABORATORIES, ALLEN B. INC. .. 3
Lescarboura Advertising, Inc.

EASTMAN KODAK COMPANY (VERIFAX). 9
J. Walter Thompson Company
EXECUTONE, INC. 16
The Joseph Katz Company

FIRST NATIONAL CITY BANK, THE. 104
Albert Frank-Guenther Law, Inc.
FLEXROCK CO. 102
Walter S. Chittick Co.

GLICKMAN CORPORATION. 102
Pace Advertising Agency, Inc.
GLOBE-WERNICKE CO. 17
Strauchen & McKim
GRAPHIC SYSTEMS. 26
Diener & Dorskind, Inc.
GRAYMILLS CORPORATION. 69
Ross Llewellyn, Inc.

HEARNE BROTHERS. 111
Schipper Associates
HEINN COMPANY, THE. 27
Morrison-Greene-Seymour, Inc.
HERTZ TRUCK RENTAL SYSTEM. 59
Campbell-Ewald Company
HUNTER PHOTO-COPYIST, INC. 35
Chapman-Newak & Associates, Inc.
HYDROWAY SCALES, INC. 58
Sales and Merchandising Counsellors

INDUSTRIAL BROWNHOIST CORPORATION. 108
Frank Kiernan & Co.
INTERNATIONAL BUSINESS MACHINES CORPORATION. ..... Cover IV
Benton & Bowles, Inc.
INTERNATIONAL NICKEL COMPANY, INC., THE. 40
Marschalk & Pratt, Division of McCann-Erickson, Inc.
INTERNATIONAL STEEL COMPANY. 112
Keller-Crescent Co.

L. O. F. GLASS FIBERS COMPANY. 114
Brooke, Smith, French & Dorrance, Inc.

MAGLINE, INC. 58, 117
Rossi and Company
MAHON, R. C., COMPANY, THE. 8
Anderson, Inc.
MANIFOLD SUPPLIES COMPANY. 79
Williams Advertising Agency, Inc.
McBEE COMPANY, THE. 10
C. J. LaRoche and Company, Inc.
MIAMI, FLORIDA, INDUSTRIAL DIVISION. . 79
Gottschaldt & Associates, Inc.
MILWAUKEE DUSTLESS BRUSH COMPANY. 33
Al Herr Advertising Agency, Inc.
MINNESOTA MINING & MANUFACTURING COMPANY. 87
Ruthrauff & Ryan, Inc.
MOORE BUSINESS FORMS, INC. 72
N. W. Ayer & Son, Inc.
MURRAY, D. J., MANUFACTURING CO. .. 76
R. C. Breth, Inc.

NATIONAL TRUCK LEASING SYSTEM. 110
W. S. Kirkland Advertising
NEW YORK CENTRAL SYSTEM. 15
J. Walter Thompson Company
NIAGARA MOHAWK POWER CORP. 18
Batten, Barton, Durstine & Osborn, Inc.

OLYMPIC LUGGAGE CORPORATION. 69
Sykes Advertising, Inc.
OXFORD FILING SUPPLY CO., INC. 94
Joseph Reiss Associates
OZALID DIVISION, GENERAL ANILINE & FILM CORPORATION. 25
Benton & Bowles, Inc.

PEERLESS PHOTO PRODUCTS. 107
John Mather Lupton Company, Inc.
PHILCO CORPORATION. 4
Maxwell Associates, Inc.
PITNEY-BOWES, INC. 100, 110
L. E. McGivena, Inc.
PRATT & WHITNEY COMPAN 2
Hugh H. Graham & Associates, Ir

RAINBOW ART CO., INC., THE. 98
RANSBURG ELECTRO-COATING CORP. 85
H. L. Ross Advertising
RAYMOND CORPORATION. 83
Taylor M. Ward, Inc.
REVOLVATOR COMPANY. 78
Fredricks & Company, Inc.
REZNOR MANUFACTURING CO. 37
Kight Advertising, Inc.
ROURA IRON WORKS, INC. 64
Marsteller, Rickard, Gebhardt and Reed, Inc.

SPECTOR FREIGHT SYSTEM, INC. 6–7
Garfield-Linn and Company
STANDARD INSTRUMENT CORPORATION. 100
Reed Advertising, Inc.
STAUFFER CHEMICAL CO. ..... Cover II
John Mather Lupton Company, Inc.

TAYLOR, HALSEY W., CO., THE. 109
The Advertising Agency of William Cohen
TEL-A-STORY, INC. 102
Warren & Litzenberger
TELETYPE CORPORATION. 36
Cunningham & Walsh, Inc.
TEXTILE BANKING COMPANY. 98
L. E. McGivena & Co., Inc.
TIMES FACSIMILE CORPORATION, STENAFAX DIVISION. 64
Thomas & Douglas, Inc.
TORONTO-DOMINION BANK, THE. 82
Albert Frank-Guenther Law, Inc.

UNION STEEL PRODUCTS CO. 106
Rumsey & Associates
UNITED AIR LINES. 62
N. W. Ayer & Son, Inc.
UNITED STATES STEEL CORPORATION. ... 103
Batten, Barton, Durstine & Osborn, Inc.

VULCAN RUBBER PRODUCTS, INC. 91
Gotham-Vladimir Advertising, Inc.

WAGNER ELECTRIC CORPORATION. 109
Arthur R. Mogge, Inc.
WASSELL ORGANIZATION. 74
James R. Flanagan Advertising
WEST BEND EQUIPMENT CORPORATION. . 26
Morrison-Greene-Seymour, Inc.
WEST DISINFECTING COMPANY. 75
G. M. Basford Company
WESTERN UNION TELEGRAPH CO. 12–13
Benton & Bowles, Inc.
WESTINGHOUSE ELECTRIC CORPORATION, LAMP DIVISION. 38–39
McCann-Erickson, Inc.
WESTON, BYRON, COMPANY. 86
Walter B. Snow & Staff, Inc.
WING, L. J., MFG. CO. 65
Willard G. Myers Advertising Agency
WIRE & IRON PRODUCTS, INC. 94
Rossi and Company
WOOD CONVERSION COMPANY. 68
The Buchen Company
WYANDOTTE CHEMICALS CORP. 60–61
Brooke, Smith, French & Dorrance, Inc.
WYSSMONT COMPANY, INC. 84
Sven Thornblad Sales Engineering Co.

ZIPPO MANUFACTURING COMPANY. 71
N. W. Ayer & Son, Inc.

ADVERTISING SALES STAFF: Alex J. Dughi, Advertising Manager

New York, 99 Church St., DIgby 9-3300 ..... George Maturniak, Mark McDonald, Bert Berne
Philadelphia, 3 Penn Center Plaza, LOcust 8-3500 ..... Alvah B. Wheeler
Chicago, 300 W. Adams St., RAndolph 6-8340 ..... John Krom, Ralph O. McGraw
Cleveland, 629 Terminal Tower, TOwer 1-3520 ..... William Burleigh
Detroit, 1100 Cadillac Tower, WOodward 1-3764 ..... Carl Neppach, Jr.
Pittsburgh, 5215 Centre Ave., MU 3-1800 ..... Vince Winterhalter
Los Angeles, 610 S. Main St., Vandike 2141 ..... Walter Huckins
Atlanta, 1722 Rhodes-Haverty Bldg., JAckson 2-8113 ..... H. F. Cogill, Morgan Pirnie

acceptance

When a salesman can't...
Dun's Review and
Modern Industry will...

...get through to the president

Recent surveys* conducted in selected cities have shown conclusively that presidents of manufacturing corporations *are* hard for a salesman to see, yet—these presidents influence major purchases made by their companies.

In Dallas, 9 out of 10 presidents had actively influenced a major company purchase during the month preceding the survey. But in less than 6 out of 10 of these instances had the president seen a salesman representing the product or service bought.

In Cleveland, 8 out of 10 presidents had influenced a major purchase...yet *fewer* than half of these had seen a salesman.

In Syracuse, 2 out of 3 presidents had had this purchasing influence...yet again fewer than half had seen a salesman.

This situation points up a serious marketing problem—and underscores the NECESSITY of advertising in management magazines.

Presidents are serious readers of business magazines. And they accept in particular, Dun's Review and Modern Industry, the magazine edited to the special interests of presidents—and men who are going to be. 79% of DR&MI's readers hold a title of General Manager or higher. Over 52,000 are presidents.

When a president decides to buy, it's a sale—and presidents buy by the carload, not by the dozen; in tons, not pounds. If *you* want to reach the men with the authority to initiate and OK big buying, choose the pages of Dun's Review and Modern Industry.

DUN'S REVIEW and MODERN INDUSTRY

The Magazine of Presidents—and men who are going to be.

*Research carried out by Fact Finders Associates, Inc., New York

WHAT'S HAPPENING TO STANDARDS?

THE PRICE OF FOLLY is always high, but many concerns are willing to pay it for the moment's gain. Are you?

As the price squeeze continues, there are growing complaints that inspections are being lessened or downgraded and personal services eliminated. Are lowered standards inevitable in the face of rising fixed and variable costs? Must they be accepted as an inescapable by-product of the inflationary pressures of the material and labor spiral?

According to a rule-of-thumb measurement, one complaint cancels out a hundred compliments—which is one reason why adverse criticism often gets far more attention than it merits. But when complaints on quality and product and service gain momentum, it's time to take heed. Just what are the current complaints? Let's look first at the retailing function, and then at the processing of merchandise.

Self-service is a natural offset to the wage spiral. As a time-saver and space-saver, it is a desirable development in many instances. Yet even though self-service has proven its efficiency in retailing groceries, toiletries, and notions—which are presold, convenience items—it cannot be expected to sell major appliances. The success of "do-it-yourself" is no justification for shifting the service responsibility from dealer to consumer. In all too many cases where self-service cannot take the place of the retail sales clerk, informed salesmanship has degenerated into order-taking by a poorly informed, often lackadaisical staff.

Buyers of new cars are complaining of improper servicing on delivery. Confronted by a loose bolt, a badly fitting panel, or a squeaking door, the dealer blames the factory—and the factory blames the dealer.

Ordering particular sizes, colors, or weights, the retailer is likely to get something else in specification or quality. The blame is spread over the customer's lack of clarity in ordering, the salesman's carelessness, the stock clerk's laxity, and the company policy on making unwarranted substitutions. Facts are lost in a welter of alibis, face-saving excuses, and plain fabrications. And dissatisfaction is growing in many lines and markets.

Pressures, whether volcanic or economic, usually erupt at the weakest point. What can we do without? What will hurt the least? These are the questions asked when costs move inexorably upward. The erosion of standards by a slow rust of "Why bother?", "Who cares?", and "That'll get by" can and does threaten the reputation of products and services. What are we going to do about it?

Generalities are a difficult and sometimes unfair basis for criticism. Many companies are striving with candor and vigor to maintain quality standards in products and service. Others should be reminded that warranties, promises of performance, and traditional reputations are obligations and assets not to be cast aside out of caprice or laziness, or even under the duress of costs. There is urgent need for strengthening quality control, not only over what we do in the physical operations of the company, but over what we say in advertisements, catalogs, product specifications, and sales presentations.

Difficulties in meeting competition, whether domestic or foreign, often tempt the manufacturer or processor to cut corners. Competition serves a good purpose by eliminating needless motions, details or functions, but it provides no lasting benefit when it reduces quality or utility for the sake of an immediate competitive advantage.

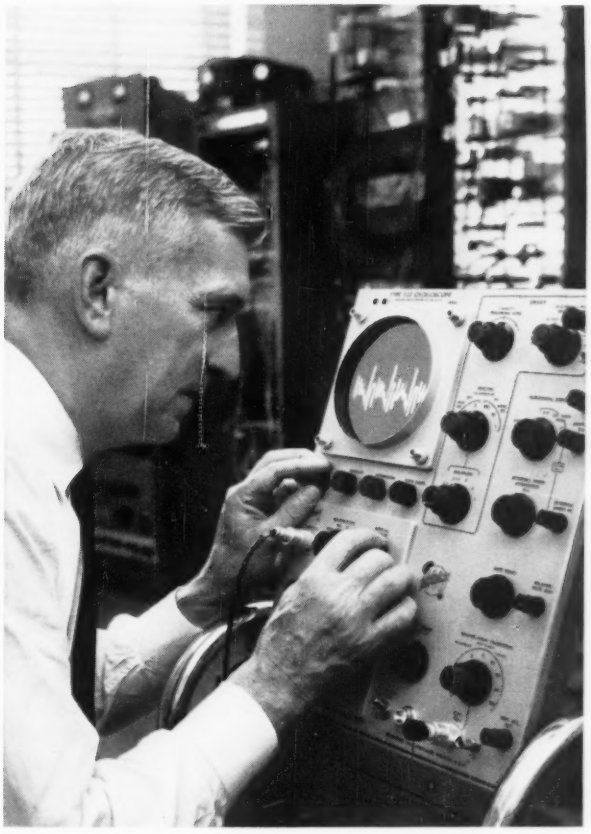
Part of the answer is the maintenance of quality control through better tools, better research and testing, better methods, better inspection, and better customer relations. But the greatest need at this time is for public testimony by leaders of industry and trade of their determination to fortify standards of quality and brush aside all excuses for shoddy goods and slovenly services.

Inflation is a sneak thief when it steals values, but it is a saboteur when it undermines standards—and it can do lasting damage unless it is arrested in time.

The Editors

An intrstng exprmnt in spch

How your words might be compressed into "shorthand" sound waves for telephone transmission



YOUR EAR IS OUR CUSTOMER. Bell Laboratories scientist Homer W. Dudley, who originated the "electronic shorthand" method of sending speech, studies wave patterns made by sounds as you would ordinarily hear them over the telephone. To get these sounds from mouth to ear by telephone as quickly and efficiently as possible is our fundamental job.

Any time we can speed your voice from telephone to telephone with less equipment you're bound to benefit.

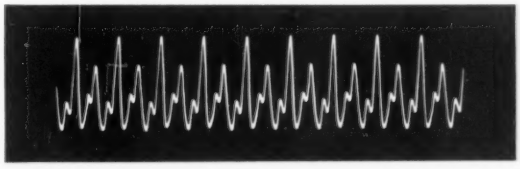
One possible way to do this is by a new transmission method which Bell Telephone Laboratories scientists are exploring. You might call it "electronic shorthand."

Actually, it's a method by which samples are snipped off a speech sound—just enough to identify it—and sent by telephone to a receiver that rebuilds the original sound.

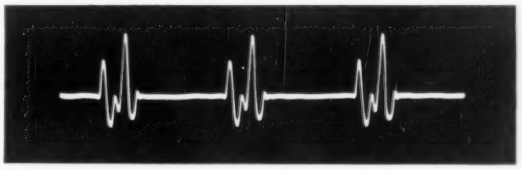
The two charts on the right show how this can be done even with a short sound like "or."

Our scientists are putting further research into this idea, which could mean not only improved service but a more economical use of lines as well. Voices could be sent by fewer electrical signals. And more voices could be sent over each wire.

It's exploring and developing like this that make telephone service the bargain it is.



THIS IS THE SOUND "OR." Chart shows how the oscilloscope records vibrations of the sound "or." Vibrations originate in puffs of air from the larynx when a word is spoken. Electronic machines don't really need all these vibrations to recognize the particular sound.



THIS IS ELECTRONIC SHORTHAND OF THE SOUND "OR." One "pitch period" in three (as against all nine shown in upper chart) has been selected for transmission. With this system, three times as many voices could theoretically travel over the same pair of wires and be rebuilt into the total original sounds.

Working together to bring people together
BELL TELEPHONE SYSTEM

ever see IBM stalk a public enemy?

Last night, police rushed the smudged, barely perceptible fingerprint of an unknown killer to state headquarters. There, an IBM "automatic detective" raced through thousands of fingerprint records and identified the suspect in less than ten minutes.

Guarding your life and property in this way is just one of an amazing variety of tasks assigned to IBM data processing machines by government offices everywhere. Flying through tons of paperwork, these machines speed vital services and help communities across the nation keep pace with the problems of growth.

Yes, every day, in uncounted ways, IBM helps add to the progress of community life . . . and the pleasure of daily living.

IN MANY WAYS AND PLACES IBM HELPS TAX DOLLARS DO MORE

By using an IBM computer to find economical road designs, state highway builders saved $2,000,000 on a new 20-mile stretch of superhighway.

Processing accident reports for one state, IBM machines revealed road conditions chiefly responsible for fatalities. Result? New safety measures at key locations.

In federal agencies, IBM's giant 700-series computers swiftly handle a wide range of projects—from engineering for defense to Social Security accounting.

IBM® DATA PROCESSING

DATA PROCESSING • ELECTRIC TYPEWRITERS • MILITARY PRODUCTS • TIME EQUIPMENT